The Builder.

VOL. XXXVII. No. 1892. SATURDAY, MARCH 1, 1879.

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"*Histoire et Théorie de l'Architecture.*"

THE work recently published in France under this title* has attracted already some attention among architects in this country—more perhaps than its intrinsic merits would have called forth, in consequence of its containing a direct and brusque attack on one of the most important contributions ever made by an English architect to the study of ancient architecture. We have long been in the habit of thinking that Mr. Penrose's work on the principles of Athenian architecture was a book of which English architecture might well be proud, as the first logical demonstration of a most interesting and important series of facts in regard to the Greek theory and practice of architectural design, arrived at by a process of investigation exceptionally minute and conscientious, and illustrated with admirable completeness. All this we are bluntly told is a series of mistakes, arising from the attributing to design what are merely accidental derangements of the structure of the buildings measured, the Parthenon in particular. We shall refer more especially to this point in its proper place; we allude to it at the outset as the point which has drawn particular attention to the work in this country, and which renders it a matter of some special interest to many of our readers to consider what is the calibre and merit of a work which assumes this position in regard to the labours of one of our most scientific architects.

What strikes us in the first place, and will strike almost every English architect who opens the book, is that there is absolutely not one word said about Mediæval or Gothic architecture, not one hint of the existence of anything of importance between the Classic styles and the Renaissance. This is to us perfectly inexplicable. Here is a book by a gentleman who signs himself on the title-page "Membre de l'Institut" and "Professeur de Théorie à l'École Nationale des Beaux-Arts," a book broadly entitled "the History and Theory of Architecture," and which absolutely ignores the existence of one of the greatest and most historically interesting of all the chapters in the history of architecture. The author gives not a hint of any reason for this: in his prefatory paragraph, entitled "Plan d'Ouvrage" he does not say a word as to any intentional limitation of his subject; he has a chapter on "the history of architecture before the Flood," but about its history between the epochs of the Pantheon and St. Peter's he is absolutely silent. That a French architect should have adopted this view of the subject before the publication of M. Viollet-le-Duc's Dictionary, might have been more comprehensible; that any one should be found to do so now is only a proof of narrow-mindedness and pedantry; and if this represents the view of the province of architecture as understood in the "École des Beaux-Arts," all M. Viollet-le-Duc's attacks and innuendos against the architectural teaching of that institution are more than justified. As if to leave nothing undone to complete the absurdity of his position, the author actually professes his aim, in the opening paragraph, as follows:—"Nous remonterons d'abord, autant que possible, aux monumens les plus anciens, prototypes présumés des édifices postérieurs, afin de saisir le point initial de cette long chaîne qui se déroule de siècle en siècle, et nous suivrons chaque type dans tous ses développements, depuis son origine jusqu'aux temps modernes." It is difficult to believe that in the present day any architect in his senses could positively profess to follow out the history of the art "in all its developments," and exclude from this summary the whole of the cathedrals and monastic buildings of Mediæval Europe! It is obvious from this at the outset, that we have to deal only with an academical view of architecture, and it is, therefore, useless to review the book from any other standpoint: we must content ourselves with protesting against the assumption of the author that he has produced a comprehensive book upon architecture, and against the misleading title of a book which ought to be called "Theory and History of the Classic Styles of Architecture."

The short preliminary chapters which are devoted to the research after the origin of architecture are merely the kind of formal profession of investigating the subject *ab initio*, with which readers of French theoretical works are quite familiar. There is an examination of Chinese, Mexican, and Indian architecture (very brief in each case), with the avowed intent of finding whether they can give us any light as to "the origin of architecture," with, of course, the inevitable conclusion that none of them can. The notice of Indian architecture is very superficial, and the author does not seem to know anything of Fergusson's works, which are, of course, the chief accessible sources of information now.

In coming to Egyptian architecture, we get upon firmer footing, and the author appears to much better advantage. We still feel, however, that he is on very debateable ground in his division of Pharaonic architecture into two great sections, that before and that after the Flood. We presume from this that M. Lesueur knows the date and extent of Noah's flood, in which he is at all events in advance of any professed students of history. What he really means, however, is that there is a pyramid epoch and a temple epoch, and that the one is older than the other: which no one will be disposed to question. His opinion that Egypt when she first comes into view in history was in a state of advanced civilisation which had been for a long time in existence, is in accordance with the opinions of those who have most profoundly studied Egyptian archæology. From the architectural point of view, the chapters on Egyptian architecture appear rather rambling and inconsequent, but there are very significant suggestions in it. Among the best of these are the considerations relative to the origin of the cavetto cornice of the Egyptian temples. He starts with the idea that the Egyptian tomb was in its earliest form to a great extent a representation of the abode of the deceased while on earth, it was his abode after death, "its interior decoration retraced the scenes of his life," and even the form of the tomb recalled the likeness of his earthly home. "Thus the lintel over the door of the ancient sepulchre was the imitation of the wooden lintel of the dwelling, and in the old tombs of Saqqara and Abusir, the *plafond* imitates in relief the cylindrical joists forming the ceiling of the habitations. Lastly, at Beni Hassan, one sees the likeness of the same reeds, cut in the rock, forming a penthouse over the entry. There the joists, separated by intervals, offer at the same time the origin and the most ancient example of *mutules*. In the old tombs of the necropolis of Memphis, on the contrary, the joists are adjoining each other. A stele, graven on the rock at Tura, presents the effect in perspective of joists or poles, also in close contact, in which the natural form of the wood is preserved, and which are prolonged beyond the face of the wall to shelter the inscription.* This is evidently the original type of the channelled cornices crowning all the Egyptian temples; it is rare to find an etymology as clear as this."

This point is connected with the question, always so interesting to the student of architectural development, of the relation of stone structures to wooden originals. In regard to this point M. Lesueur quotes, in order to confute, Quatremère de Quincy, who has expressed the opinion that the architecture of the Greeks was manifestly derived from wooden originals, while that of Egypt was derived from an architecture of excavation. M. Lesueur holds that the Greek architects imitated wooden construction only in some secondary portions of their buildings (and even there one may say the imitation is so distant as to be always open to question), and the Egyptians had done the same thing far more obviously long before. But the Egyptians knew also when to disguise the frail origin of their details that were derived from timber. They had "*l'esprit trop juste*" to allow of their giving to their religious edifices a construction of a common or perishable appearance. "If they adapted the idea of the cornice of their temples from a form produced by necessity, they disguised this by imitating the graceful curves of the date-palm, a curve upon which (in the building) the imitation of the stems was transformed into channelling. And against this rich background of the fluted cove was designed, lastly the winged globe, the symbol of almighty power." This is, of course, not all new, but it is effectively put, and the progress from the square pier to the fluted column is admirably and logically shown in a single plate giving plans of columns in the different stages they would probably go through, and of which Beni Hassan is the only stage remaining for actual inspection. The existence of this Early Doric in this isolated form is the more remarkable a problem, when it is considered that it dates so far back (if the reading of chronology by Egyptologist interpreters is correct), as more than 3,000 B.C., and it certainly is very extraordinary (more so than architectural historians have quite recognised) to find something so

* Histoire et Théorie de l'Architecture. Par J. B. Lesueur. Paris: 1879.

* The author gives an illustration of this highly interesting carving, page 65.

nearly like Grecian Doric, so obviously connected therewith, at such a distance of time before the Greek period, and to have lost all the intermediate steps between the two.

This is, in fact, we presume, one of the reasons on which M. Lesueur has based the observation (page 94) that Egyptian architecture appears to travel in the reverse direction from the architecture of other countries. "While," he says, "in Greece the buildings attain successively an increased elegance, following the natural order of things, among the Egyptians, on the contrary, the most elegant columns, the most harmonious lines, are those of the most ancient periods; and the heavy proportions, elsewhere always characteristic of the infancy of art, are, in the land of the Pharaohs, the produce of the decadence." The author accounts for this (granting it to be fact), by the consideration that, after all, the most ancient Egyptian works which time has spared to us are probably 6,000 years subsequent to the infancy of Egyptian civilisation, and that what we consider as the first productions of Egyptian art are, in fact, those of its decline. We can hardly see, however, that this renders the fact of the subsequent reverse progress towards heavy proportions any more easily explicable; and the generalisation seems hardly in accordance with all the facts. There is, however, a point in its favour made by the schedule of the dimensions and dates of the principal obelisks, showing that the later ones are considerably heavier in proportion than the earlier ones. In regard to the obelisks, which are very briefly disposed of, the author gives no hint as to their phallic origin, which, in view of some of the painted decorations of the Egyptians, is incontestable; though the remembrance of their original meaning may no doubt have faded away, as is often the case in regard to symbolical features in architecture, at or before the period when they became most frequent and important as architectural adjuncts.

A point in regard to Egyptian architecture which is of some interest at present is the presence or absence of proportional relation in the parts of buildings,—a subject to which M. Lesueur devotes a chapter, though observing that "this fundamental principle, fruitful in good results, will be more conveniently treated when we come to speak of Greek art." As the existence of proportional relations in Greek architecture is not to be doubted, and as it is a part of M. Lesueur's creed that all Greek art is derived from that of Egypt, he is (to adopt his own way of speaking of another architectural writer) under a kind of necessity to find proportional relations in Egyptian architecture. M. Lesueur distinguishes three principles or orders, which he calls "*mode hexamétrique*," "*mode heptamétrique*," and "*mode octométrique*." The *mode hexamétrique* is illustrated by the Temple of Neptune at Pæstum (which we presume M. Lesueur regards, therefore, as directly Egyptian in its origin and proportions), and is thus stated:—

Cornice (including torus moulding)	1 module.
Architrave (including *dé* beneath it)	1 module.
Capital	1 module.
Shaft of column (including the base)	3 modules.

The principle being, says the author, the extremely simple one that the square part of the order is precisely the half of the circular part. Now this seems, no doubt, a very simple statement, and one easily to be verified; but, at the very outset, the author seems to fall into the confusion of statement and calculation which appears to be the fate of all persons who meddle with proportional theories. He states the theory in terms, as one may say, of an Egyptian temple, and then illustrates it by an example of a Greek one which does not fit the description. It is needless to observe that there is no *dé* below the architrave in the Pæstum temple, and no base to the columns, both features being portions of Egyptian architecture, and not of Greek; and, of course, the capitals do not occupy the depth of one module, or anything like it; they appear, in fact, to have no commensurate ratio with the other heights. Hittorf, in his comparative table of proportions of Doric orders, divides the Pæstum order into five parts in height, so that it would on his theory be pentamétrique, but the capital does not fit into that either. There is no doubt, however, that it is much easier to believe that such simple proportions as these, whether in Egyptian or Greek architecture, were intentional, than to believe some of the fractional and utterly disproportionate numbers which are brought before us by other theorists on Greek architecture, as matters for implicit faith. The *mode heptamétrique* is supposed to be illustrated in a temple at Medinet-Amoud at Thebes. The order is divided into exactly seven parts in height, but M. Lesueur does not give us the relative heights of the parts, only he tells us that "the diameter" (of the column, we presume) "is rather less than a module," which is, of course, only another way of saying that there is no proportionate relation between the diameter and the heights, that relation being an integral part of the before-named "hexamétrique" order. But when the diameter cannot be made to fit the heights, then it is discarded as of no consequence. The octométrique order is, says M. Lesueur, the most ancient, and consists of columns of six diameters (the author says "modules," but a diagram in another part of the book shows that he does mean diameters here, though he is quite indifferent about them in the last-named case), architrave of one, and cornice of one. He names the temple of the Wingless Victory as a Greek example; but neither is this correct, unless we take the six parts from the shaft of the column only, and add the capital to the architrave, which is not the method employed in other examples cited. As in so many other cases, these proportional quantities can only be made out by continual manipulation and modification of the data. What is of more interest to us is the reference to the ancient rock-cut tomb at Giseh, which, according to the author, exhibits these special proportions, but which is of interest otherwise, as showing an example of what is evidently a very early form of lotus capital, and also as showing what M. Lesueur states to be the early and originating form of the *dé* interposed between the capital and the architrave in Egyptian architecture, and which is here shown as a downward projection worked out of the architrave; or, more correctly, the soffit of the architrave is hollowed between its bearings. The space between the main soffit and the capital is, however, much less than the usual thickness of the *dé* in later Egyptian architecture, and the object of the hollowing of the soffit is obviously to remove from the edge of the bell capital any weight that might tend to split its edges, and bring the whole bearing of the architrave over the solid centre of the column, in a manner perfectly in accordance with logical and scientific construction. If this was the habitually-used earlier form, it will be very readily seen how the labour of cutting away a part of the soffit, even for a small thickness, over the whole bearing of the architrave, would before long be abandoned for the easier expedient of placing a *dé* between the capital and architrave, and how it would seem almost necessary, when treating the *dé* as a separate piece, to give it more mass and thickness. Regarding this as the origin of the *dé*, M. Lesueur considers that it must always be counted with the architrave, and as a part of it (even after it had ceased to be actually so) in any calculations as to proportionate heights. This provision may facilitate the student in eliminating proportional heights in a probable manner in some instances, and may just as probably be an additional difficulty in other instances. What strikes one in looking at the matter from a constructional point of view is, that it is curious the Egyptians should not have seen from the first how much more easily the object could have been accomplished by leaving a small projection solid on the top of the bell of the capital, just thick enough to clear the bearing of the architrave from the edges of the bell. Another point which is suggested in the chapter before us, and which is really worth consideration, is that it was a general principle in ancient columnar architecture that the greater the number of columns, or, in other words, the longer the colonnade in proportion to its height (which seems to us a better way of putting it), the closer proportionally will the columns be placed ("plus les colonnes sont nombreuses, plus elles sont serrées"). We should doubt if this could be reduced to a mathematical principle, but it is allied to a true feeling for picturesqueness and balance in composition.

There can be no question as to the close historic relation between Greek temple architecture and the small temples *in antis*, as they may be called, which are found in different parts of Egypt, which are in their plan and general disposition almost Classic in character. They form, perhaps, the most obviously direct link between the architecture of Egypt and that of Greece, as to the close relationship of which in general, however, M. Lesueur expresses himself in the most positive manner. His summary of the whole book on Egyptian architecture is given thus:—

"Les règles de l'architecture Grecque ne se trouvent point en Grèce, mais en Égypte.

L'art Égyptien contenait en germe toutes les beautés de l'art Grec, tandis que les arts de la Chine et de l'Inde sont, au contraire, condamnés à une perpétuelle enfance."

This may be carried a little too far, possibly; but, on the whole, we are disposed to think that it is very near the truth.

The author's general treatment of Greek architecture and the derived styles we propose to consider in another article; but we will anticipate one point in that part of the book, as we do not wish to quit the subject this week without saying at once what we have to say as to the criticism, or rather attack (for we can hardly call it a criticism), which M. Lesueur has made on Mr. Penrose's measurement of the curves of the Parthenon. We have looked carefully again over Mr. Penrose's book, his facts, and his arguments derived from them, and are quite convinced that his position is unassailable, and that M. Lesueur's attack is entirely uncalled for and ill-considered. M. Lesueur has the bad taste to suggest that as Mr. Penrose went to Greece under the sanction and with the assistance of the Dilettanti Society, he was "under a necessity to find the curves," a remark which we can only characterise as a specimen of the flippant impertinence which is only too familiar to those who are in the habit of reading French criticisms of the works of men of other nations. Mr. Penrose had, in fact, become perfectly conscious of the existence of the curves before his second visit to Greece, which was made not to "discover" the curves, but to measure them and ascertain their precise nature; which he did with an accuracy and ability which M. Lesueur cannot pretend to discredit. The explanation given by M. Lesueur is that the curves are all the effect of settlement, and he is foolish enough to hint that nothing could have been made of them in Mr. Penrose's book, except by a very exaggerated vertical scale, such as is there used, and which he says produces a line "brisée, tortueuse, comme en produisent naturellement les tassements inégaux, une ligne ne ressemblant à aucune courbe ayant un nom." Perhaps M. Lesueur will be good enough to tell us in what manner he would propose to exhibit on paper of the size of a folio book a curve rising to 4 in. or 5 in. only in more than 200 ft. (as the flank curves do) without a "greatly exaggerated vertical scale," and whether he wishes to insinuate that Mr. Penrose is the first draughtsman who used such a scale for such an object? It is odd that he does not see that the first part of his sentence itself includes the answer to the last. *Because* the vertical scale is greatly exaggerated, and because the slightest settlements and displacements have been measured by Mr. Penrose with conscientious and minute accuracy, therefore the line necessarily exhibits the slightest deviations owing to displacement of the masonry in the most exaggerated form. But when M. Lesueur says that the line resembles no curve whatever, we have only to appeal from the representation on the vertical scale (which M. Lesueur so absurdly treats as if it were an actual representation of the curve) to Mr. Penrose's figures, which no one, we take it, will be hardy enough to contest; from which we find that the curve of the steps on the west front hardly differs anywhere by the ·008th of a foot from the calculated arc of a circle which it should assume: and the lines of the other faces do not differ much more, except in one place where the old sub-basement or the rise of the ground have apparently interposed obstacles to the complete carrying out of the line as intended. We never heard of curves of settlement assuming this degree of mathematical accuracy; and we may also ask M. Lesueur to explain how it is that the joints of the steps are found to be radial to the curve, and that where they are at all open it is always in the lower part of the joint, and not in the upper part, which latter would be the necessary and obvious result if the curve resulted from settlement at the angles of the building. M. Lesueur would next have to explain why the return sides of the abaci are not plumb, and why their minute divergences are all in one direction in the columns on one side of the centre, and in the opposite direction on the other side of the centre of the fronts,

not to mention a number of other minute points all tending in the same direction; and he would, perhaps, finally explain to us how it comes to pass that an upward curve is found on the fronts of the following temples:—Jupiter Olympius, the steps or podium of the earlier Parthenon, the Temple of Theseus, and the temples at Nemea, Segesta, and Paestum; and how it is, if the curve is the effect of settlement, that all these temples have settled at the angles, where there is least weight, and not under the centre of the pediment, where there is most weight? We recommend gentlemen who have sent us correspondence in support of M. Lesueur to consider carefully these facts, and others which they will find in the pages of Mr. Penrose, the accuracy of whose conclusions, we imagine, they would hardly have impugned if they had been properly acquainted with all his facts and all the steps of his argument; and in regard to M. Lesueur, we must express our conviction that either he has only very partially studied the subject, or else that the real motive of his attack is the fact that the discoverer of the Parthenon curves was not a French architect.

ROYAL ACADEMY LECTURES ON ARCHITECTURE.*

BY PROFESSOR EDWARD M. BARRY, R.A.

EARLY RENAISSANCE.—BRUNELLESCHI.

ON previous occasions we have traced the influence of Classic reminiscences in the Gothic architecture of Italy, a system which seemed to be compounded of rival styles, and in which Byzantine, Lombardic, and Romanesque elements contended for the mastery with Gothic types derived from German or Northern sources. We may now pass on to the time when Gothic was laid aside as barbarous, and the whole intelligence of the nation was concentrated on a revived classicalism of literature and art.

Mediæval traditions, and interest in the architecture of the Middle Ages, have never been altogether lost to ourselves, although the great Renaissance architects of England, Wren and Inigo Jones, had little respect for it. Our people were conscious of growth, and did not live amongst the shattered fragments of former greatness.

The Italians, on the other hand, broke at once, and as it would seem, for ever, with Gothic architecture. Intent upon the revival of the glories of imperial Rome, with a freedom opposed to the Mediæval spirit, they soon came to dislike the Gothic of the Middle Ages, and even to esteem it barbarous.

This feeling has continued, more or less, to our own day, and we find Milizia [who died in 1798], expressing his opinion, in no measured terms, of the architecture, which, he says, "declined under Constantine into a heavy disproportioned style, improperly called Gothic." He adds, "that in the tenth century, it again changed, and, from the excess of heaviness, assumed an equal excess of lightness; every part was perforated and embattled: this was called the Modern Gothic, or, for distinction, the Gothic. It revived again in the thirteenth and fourteenth centuries. Finally, arts and science again arose in the fifteenth century, and Greek-Roman architecture with them; or, to speak more correctly, an admiration for them was rekindled."

Writing, afterwards, of Arnolfo's work at Florence, to which we shall presently return, he says:—"This architect showed some slight glimpses of good taste. The same may be observed of the painting of Cimabue, his contemporary. But in everything, physical as well as moral, the progress to excellence is by insensible gradations. The corrupt style, called *Gotico Tedesco*, was continued for some time after that of which we are writing."

It may seem strange to ourselves, fresh from the Battle of Styles, and the Gothic Revival, of our own time, to find the ultimate decision of civilisation thus calmly assumed. We, too, have had,—perhaps have now,—mere fashions in our art. An age which, from circumstances not of its own choosing, has no one settled style of its own, must always be exposed to vacillations in taste as regards architecture; for in respect of it, there is no court of appeal. Nature, to which the painter and sculptor may refer with confidence, has no infallible judgment to give upon a scientific and technic art, such as that of the architect.

The revival of Mediævalism, which we have witnessed in England, has dealt with graver matters than outward architecture, and has aimed at the renewal of a spirit without which the return to ancient types in the mere fabric of our churches, would seem to its more enthusiastic supporters a mockery and a sham.

A time of religious activity has sought to make amends for past coldness and neglect. Society, busy with new scientific play-things, may perhaps have even come to suspect that the road to happiness is not really to be found in what men fondly term the progress of civilisation. They will still turn from the latest philosophies,—the newest science,—to the old eternal truths, which have brought comfort to countless thousands,—and they have thus been apt to think that, in copying the ancient architectural forms, they might grasp the essence of the child-like faith of olden days.

A mere retrospect will, however, fail to satisfy. Life requires more than a worship of the past,—an attempt at an impossible resuscitation. If it should prove beyond our power to endow the revived Mediævalism of our day with the vitality of progress; if it should, on the contrary, appear that the spirit of the Middle Ages has passed away from us, never to return; may it not happen that our descendants will regard the merely formal revivals of the present time with as keen a criticism as that which, on the one hand, once pronounced Gothic "barbarous"; or, on the other, declares the Renaissance "pestilent"? Already, it might seem, from various signs of the times, that the approach of such a feeling might soon commence to make itself felt.

The Early Renaissance architecture may be studied, according to two types. One of these is more affected by the work immediately previous to itself, than is the other. We may take the Certosa at Pavia as an illustration of the one school, and the works of Brunelleschi as examples of the latter.

As we have seen the Italian Gothic tinged by Classic traditions, we shall now find the Early Renaissance, of the first type, affected by Gothic principles of design.

We have, in the Certosa, a building of great richness, with varied details, many of them very beautiful, but with a complete absence of repose. The contrast, in this respect, with the Duomo at Florence is very remarkable, in the case of buildings erected nearly at the same time. The same may be said, although in an opposite sense, of the comparison between the Certosa and the neighbouring cathedral of Milan. No two buildings can be more unlike, although commenced at about the same date. The architects of the Certosa borrowed features, without scruple, from the rival styles known to them. We thus find the beautiful arcaded galleries surrounding the upper part of the semi-circular apses, which are familiar to us, in Lombard churches; and of which examples may be found, as I have before said, rendered into Northern language, in the early buildings of Cologne. Circular arches prevail in the windows, but the pointed form is also represented. The turrets, with their spirelike tops, give a considerable effect of verticality, while the enriched cornices assert the horizontal principle. The elaborate structure, half tower, half dome, which covers the intersection of nave, and transepts, has a special interest, as being one of the few existing examples which enable us to form an opinion of what might have been the treatment of the dome by the Italian architects of the Middle Ages. It was evidently designed in accordance with the tradition of the day, altered by an admixture of details intended to be classical. We find it composed of successive stories, of small columns and arches, gathered inwards, till the summit could be crowned by a small octagonal cupola. The general effect is fantastic, and cannot be commended; but it is interesting, as illustrating an attempted compromise between the Mediæval lantern spire and the dome, which latter form was soon to be considered, in Italy, the only permissible mode of covering a great church.

Taken altogether, much cannot be said in favour of the Certosa, in an architectural sense. It is inconsistent, and its details are wanting in purity of style. Nevertheless, admiration may fairly be bestowed on many of its parts, such as the delicate arabesques, in the pilasters of the chief façade, which, though more appropriate to the painter's than to the sculptor's art, exhibit a refinement of design and execution which has seldom been surpassed.

Scarcely any other single building illustrates, more clearly, the confusion of ideas which ushered in the Renaissance. The movement was one of vigorous individuality in details, without the controlling authority of a strict general design. The Italians delighted to believe that their artistic creations were unrivalled, and strove after originality of ornamentation rather than for classical correctness, so prized and over-estimated by their later architects. At the same time they turned their eyes to the antique as the real shrine of all that was best in art, and sought to engraft Classic details on Mediæval plans.

If we turn aside from the many incongruities of the Early Renaissance, and often feel that in attempting fusion, excellence, on either hand, has been missed, we may remember that it was a time of experiments; of essays, rather than achievements. The designs of the period exhibit a life and elasticity which might have been turned to better account, and with the greater knowledge of the past possessed by modern architects, it may not be too much to hope, even yet, for a skilful adaptation of a style, based upon the works of the first period of the Renaissance.

In turning from the Certosa to the cathedral at Florence, a great difference is at once manifest between the style of the pseudo-Gothic architects of the Lombard district and the semi-Classic designs, which passed for Gothic on the banks of the Arno. The Certosa was commenced about the year 1396, and Arnolfo died at the commencement of the same century, leaving the arches of his great church unfinished, and his plans for finishing its dome, or domes, altogether uncertain. The completion of this remarkable building was left to Brunelleschi, who finished the dome, just before his death, which occurred in 1444. At this period the Certosa had been all but completed, with the exception of the western front, which was not commenced until 1473.

The Florentine church differs, in almost every particular, from the Certosa. Although the pointed arch and other Gothic details are used, it has not the appearance of a Gothic building, from the largeness of its parts, the absence of vertical features, the poverty of its details, and the flatness of its large spaces. The skyline is as simple as that of the other building is broken and confused.

Arnolfo is not, of course, responsible for its present appearance, and he might have intended to finish the central area, now covered by Brunelleschi's cupola, in a manner more consonant with Gothic custom. If so, he had prepared many difficulties for himself by the adoption of the enormous dimensions of the plan. It is believed that he lived to see the erection of his building carried out, as far only as the springing of the vaulting of the nave roof, and that this vaulting, and the semi-domes of the tribunes, round the choir, were executed by others, from Arnolfo's designs, early in the fourteenth century, so that they must have been completed before the Certosa was begun.

From this point, there seem to have arisen doubt and delay. The foundations of the church had been laid more than a century before the vaulted roofs were finished. The citizens, who, on that occasion had thronged the site, had been succeeded by others imbued with different ideas. The architect had passed away, his plans, if matured, had been forgotten, and the great question of the day with the Florentines was, — "How to finish the cathedral?" or Duomo, as it had come to be called.

It may perhaps excite astonishment that any doubt should exist as to the intentions of the architect. For so great a work, it might be thought that drawings or models would be previously prepared and carefully preserved. That something of the kind existed is probable, as Vasari speaks of Arnolfo's model, and others, which were lost by the carelessness of the persons who directed the works after Arnolfo's death.

The uncertainty and the loss of the architect's designs for this, and other buildings of olden days, is less surprising than a similar occurrence would be amongst ourselves. Our lot has been cast in times of high pressure. Time is grudged for even our greatest works; and the first question asked of an architect in commencing a building is,—"When will it be finished?"

With everything hurrying about us, with knowledge increasing, and with tastes changing, we will not trust posterity. All must be finished and complete, and we seem separated for ever from the simple faith of those, who were content to take the first step in a noble work, happy to

* Fourth lecture. See p. 193, *ante*.

do their best in their little span of life, and then leave the completion to their successors.

To us, then, it is difficult to understand the perplexity of the authorities and people of Florence (for the people, too, had a voice in the matter) as to the completion of their magnificent cathedral. We may remember, however, how soon designs half realised are forgotten. They are smitten with the infirmities of all human things, and the earth is strewn with their ashes. Little more than a century has passed since our own St. Paul's was completed, and yet what diversities of opinion are we not now called upon to consider, as to the original intentions of Sir Christopher Wren?

But to return to Florence. Arnolfo had provided enormous thickness of wall, to support a great weight of superstructure. In so doing, he showed himself to be more cautious than the Northern Gothic architects, the weakest parts of whose designs have commonly proved to be the angle-piers of the intersection of the nave, choir, and transepts. He, doubtless, contemplated an inner dome at a lower level than the existing structure, and he may probably have thought of some aspiring design recalling, externally, the Gothic lantern and spires. We find something of this sort at the Certosa, and there is a purer and more perfect specimen of the same feature at Chiaravalle, near Milan. In this example, story is gathered over story by easy gradations, and the top rises boldly into the air, as an octagon lantern turret, crowned with a steep spire-like roof. Some such composition, if carried out by Arnolfo with the same character of detail as the rest of his design, might perhaps have gone some way to redeem the flatness and want of scale of the entire building. If there existed any idea, however, of realising such a conception, it was abandoned altogether at the bidding of Brunelleschi, who came to his task fresh from a visit to Rome, where he had become imbued with a spirit of devoted admiration of the works of the ancients, and determined, if he could, to imitate, if not surpass, their achievements, and so obtain a share of their fame.

A Florentine by birth, he early acquired the friendship of Donato, and with him visited Rome. This journey was the turning-point of Brunelleschi's career, and determined his subsequent taste in architecture. He seems to have been quite overpowered by the effect upon his mind, of the great monuments of antiquity. He saw, as we may be sure, more than we can now discover; for many treasures of art, of all kinds, have since disappeared. He set himself to work, with the ardour of youth, to draw, examine, and measure the remains of antiquity, which opened to him, as it were, a new source of inspiration. Vasari says of him at this time:—"He gave himself up so exclusively to his studies, that he took no time either to eat or sleep; his every thought was of architecture, which was then extinct." He adds:—"I mean the good old manner, and not the Gothic and barbarous one, which was much practised at that period."

It may be supposed that his mind was often turned homewards, and that he thought of the unfinished cathedral at Florence, and considered how the Romans would have solved the problem, as yet undecided. We hear that the Pantheon formed a part of his especial studies, and it may well be that his subsequent proposals were based upon his admiration of the simple dome of that unique building.

He neglected none of the buildings of old Rome, and made plans of temples, baths, palaces, theatres, the Colosseum, and other monuments, from which he thought he could learn the methods of the ancients. He then returned to Florence, full of the conclusions he had formed, and as eager as any modern Revivalist to extol the merits of the half-forgotten architecture of the past.

He found the authorities in the midst of divided counsels and heated discussions. Architects and engineers had been summoned from afar, and were in full debate as to how the work should proceed. Brunelleschi soon declared his opinion that the walls should be carried higher; that windows should be pierced in the upper parts of the walls of the octagon; and that the dome should be commenced at a much higher level than Arnolfo had intended. While making these suggestions, he seems to have kept back his explanation of the actual methods to be adopted in carrying them into execution. They were consequently declared impracticable by rival competitors for popular favour, and appeared little likely to be approved. In the multitude of counsellors there seemed to many to be wisdom, and in the fierce discussions of the Florentines over the design of their cathedral, we may perhaps recognise some likeness to the deliberations of the often-distracted and puzzled competition committees of our own day. In such competitions there is too often an inherent weakness. In examinations for Honours at our universities, and in the competitive examinations of our public offices, it is the learned who try the learners, to ascertain their prowess. In architectural competitions it is too often the case that these conditions are reversed, and that real knowledge goes for little against more showy qualities. Designs, carefully considered, are submitted to committees, every member of which would probably confess his ignorance of architecture, and the reputation of a lifetime is imperilled by a popular vote.

From such decisions, there is practically no appeal. The most apparently clear and precise conditions of competition often prove to have been drawn up, only to be disregarded by their framers, after they have served their purpose in obtaining designs from too trustful architects. Even in the most conspicuous competitions, called for by the Government, for important national buildings, miscarriage of justice is not unknown. Competitors, who have furnished designs on the strength of definite promises, and in full confidence of fair play, may find themselves treated with the most obvious breach of faith by those who, having obtained the fruit of their labour, and retaining the same, ought, it might seem, to have regarded themselves as the pledged supporters of justice and equity. The competition, if we may call it so, at Florence, ended, as many have done in later times, in discord and confusion; and, at last, Brunelleschi, who had again withdrawn to Rome, probably in some disgust, was entreated to return, and carry out his plans.

It is curious to note the proposals, brought before the authorities, by various competing architects and engineers, as an indication of the helplessness, in matters of construction, which then prevailed in Italy. It would almost seem that the works of the Roman age had been quite forgotten, and even such buildings, as St. Mark's at Venice, and the cathedral at Pisa, overlooked. The Byzantine architects of the East had dealt with the problem, in their own way, as long back as the days of Justinian, and, in the first century, had given to the world one of the most beautiful domed buildings in existence, in the church of Sta. Sophia. The dome, in that example, though of smaller dimensions altogether than that of Brunelleschi, is far more effective, as a work of art, and exhibits also a greater skill in scientific construction.

At St. Mark's, the size of the building was too small, probably, to be much considered, by the disputants of Florence; and though the Venetians had always maintained some connexion with the East, by reason of their trade and maritime power, such communications were special to itself, and had little influence upon the rest of Italy. The would-be completors of the Duomo at Florence were, consequently, thrown upon their own resources, and the expedients proposed by some of them, had at least the merit of originality.

The great question was the need of scaffolding, or internal supports, for so vast a dome, while in process of construction. To meet this difficulty it was even proposed to fill up the space with earth, in which money should be imbedded as the mound rose; and that, on the completion of the work, permission should be given to the people to fetch away the earth, and keep all the money they could find. This may, perhaps, be described as the first proposal of a lottery in its simplest shape, and it had no doubt attractions for an Italian populace, for which such games of speculation have always had a special fascination. The Florentine idea had no results, but the lottery mania has never died out, and we have lately had a proof of its vitality in an unlooked-for manner, and from a quarter whence it might not have been expected, although it has not, in that instance, been applied, as it might have been, to the assistance of the public purse, in the removal of buildings, no longer needed.

When the above scheme failed to commend itself for approval, other proposals were made for the erection of a central column, or of several internal piers, with arches turned from them, to support a massive scaffolding above, on which the cupola might be raised. It was declared impossible to erect the latter of stone or other solid material, and cysteolite, or sponge stone, was suggested, as an alternative.

Brunelleschi appears to have listened to the proposals made, with ill-disguised impatience, and, at last, roundly declared that they were worthless, and that the dome could be built without such contrivances, and with no sacrifices of solidity of material, or of architectural grandeur. He soon shared the fate of those who are in advance of their time, and was voted a dreamer and a madman. He was laughed at as a simpleton, and told to talk of something which he understood, so that he complained that he could hardly pass through the streets without being pointed at, and hearing the exclamation, "There goes that fool."

In the end, however, the Florentines had to claim the assistance which they now despised. The question was referred to the syndics of the woolworkers and the wardens of the church, and they were unable to find any proposal on which they could agree. In their difficulty they turned again to Brunelleschi, and requested him to lay before them his detailed proposals. It then appeared that he had carefully considered the difficulties of the case, and had already matured plans which he was ready to pledge himself to carry out. His written report to the syndics and wardens contained a full description of his ideas. He alludes to the large dimensions of the building, both in width and altitude: the diameter of the dome being 137 ft., and the height 280 ft. In the case of the Pantheon at Rome, or the Rotunda, as it was called, the width, although greater, being 145 ft., was scarcely exceeded by the height, which was only 147 ft. The dome of Sta. Sophia had a span of only 100 ft., with an altitude of 175 ft. Both those domes were circular in plan and section, but at Florence the problem was how to cover an octagonal space in a building of Gothic architecture, and with pointed arches. Brunelleschi decided that the dome should be octagonal on plan, so as to suit the walls, and that the section should be pointed, that being, as he said, "The form which displays a rapid tendency to ascend, and, when loaded with the lantern, each part will help to give stability to the other."

By this design, a certain harmony was doubtless secured between the plan of the church and the domed roof over it; but, nevertheless, it cannot be said of Brunelleschi's work that it has solved the problem of a Gothic dome. In the neighbouring baptistery there is an example of an Early Pointed dome of octagonal plan, which may well have served as Arnolfo's model in his general design of his far greater work. There was, therefore, no novelty, thus far, in Brunelleschi's suggestions, beyond the scale of the work. His originality displayed itself in the proposal of great height. This was a departure, not only from what are understood to have been the intentions of Arnolfo, but also from architectural precedent, as far as it applied to dome construction. By raising the drum, or story, beneath the dome, Brunelleschi evidently desired to obtain a grand external effect, as well as a noble completion of the interior. This has been the aim throughout of the Renaissance architects, and it brings their practice into strong contrast with that of their predecessors. The dome of the Pantheon is perhaps one of the grandest in existence, and if we could see the interior with its ornamentation, as it was originally designed, it might pass for one of the most magnificent in the world. It has, however, no external effect, and, indeed, is scarcely visible from the outside. The internal design has been the only point considered, and the dome, built of a single thickness, has no external covering or decoration. The centre, where the subsequent architects placed their lantern, adding thereby enormously to their constructional difficulties, is here open, and through the void space the light streams inward, giving a simplicity and sublimity of effect which has never been surpassed by any other method of lighting an interior. The Renaissance architects adopted different arrangements, and did not therefore derive direct inspiration from the Romans in respect of their treatment of the dome.

Nor was the case otherwise with the Byzantine buildings,—with the exception, perhaps, of St. Mark's, Venice, a structure which is in many respects unique, from the peculiar circumstances of its erection. At Sta. Sophia, we find a building domed throughout, and

which is, to my mind, the noblest architectural interior I have ever seen; but, here also there is no attempt to make the dome an external feature of the building. The adoption of curved lines, throughout both plan and elevation, gives to Sta. Sophia a completeness of effect as a domed structure which cannot be claimed for buildings which adopt a dome as they might any other form of roof for covering a part only of the interior. In this case there is no sort of incongruity. We have no square or rectangular nave or transepts, roofed over by curved forms. Curvature is of the essence of the plan, and we see at once that a domical completion is the most obvious and natural method to be adopted. The eye passes with delight from the walls to the roof. Niche-like recesses lead to semi-domes, and these carry the interest upwards, till it culminates in the great central cupola, the whole forming one of the most beautiful,—perhaps the most beautiful,—works of domical architecture in the world.

At St. Mark's the domes are more numerous, but less successful; indeed, the visitor thinks little of their architecture, in comparison with the gilded mosaics, with which they are covered. In this respect, the contrast with Sta. Sophia is very great, for in the latter case the mosaics have been whitewashed over by the Turks, who use the building as a mosque. If such a barbarism had been perpetrated at St. Mark's, there would be found little in it to admire. We miss, altogether, the congruity between plan and section, of which Sta. Sophia is so striking an example; and the minor domes act rather as rivals to the central cupola, than accessories, leading up to and enhancing the effect of the chief feature of the design.

It is worthy of remark, however, that at St. Mark's, we find an essential difference of external treatment. The dome had hitherto been the actual crown of the building. The interior surface formed the ceiling of the church, while the exterior was a visible roof, to resist the weather. At St. Mark's we meet with domes which have become mere ceilings, constructed at a lower level than the exterior leads us to expect, and covered with lofty roofs, having no relation to the forms beneath them. This was the method of the Gothic architects of Northern Europe, though they did not adopt the fantastic shapes which we see at Venice. The groining in our own Gothic cathedrals is not the roof, in the sense, that the dome of the Pantheon is the roof of that building. Such groining requires to be protected by an outer roof of woodwork, covered with lead, or other weather-resisting material.

This circumstance has led to the partial destruction of many fine monuments, and its necessity is therefore to be regretted. At the Houses of Parliament, the roofs are all formed of non-combustible materials, and there can be little doubt that such a mode of construction should be adopted in our most important buildings, and applied, when possible, to those which we desire to uphold, and hand down to posterity.

Brunelleschi's work is rather an octagonal roof, with curved sides, than a dome, in the strict sense of the word. He adopted the Northern method of double construction; but with so little difference between the inner and outer sections, that the whole might be considered a single design. By this arrangement, he obtained the opportunity of availing himself of the whole thickness of the double section, at the points where special strength was necessary, such as the eight angle ribs. Between the angles, he placed piers, or internal buttresses, two in each bay, to give stiffness to the filling up of the compartments, and to serve as counterpoises to the thrust of the arch. Between the outer and inner cupolas, Brunelleschi placed a circular ring or bond. This was formed of strong beams of oak, fastened together with iron. It served to tie together the various portions of the fabric, and to give to its octagonal form the support which could be derived from the arched or circular form of plan. The dome, in fact, became a structure, circular on plan, with extraneous parts added to the circle, so as to become an octagon. The circular bonds were used at about 18 ft. apart, and the dome was carried up to a certain height in this manner, without scaffolding or internal support, to the confusion of those who had advised the costly and elaborate expedients before referred to. In Brunelleschi's report, he does not, however, venture to promise a full completion of the work without scaffolding. He only undertakes that it shall be carried up to the height of about 60 ft. From this point upwards, he says, it may be continued, "after such manner as shall be determined on by the masters who may have to build it, since practice teaches us by what methods to proceed." For the lower part he advised the use of hard stone and marble, and for the superstructure, brick or spongite (spugne), for the sake of lightness. It is curious to mark the reserve which Brunelleschi exhibited in his suggestions. He had not forgotten the contempt with which they had been at first received, or the insults which they had brought upon himself. He seems for the future to have contented himself with pointing out the step to be taken at once, while leaving his future intentions vague and undescribed. The Florentine authorities did not thoroughly trust him, for they associated with him Lorenzo Ghiberti, known to us for his famous gates to the Baptistery, and who appears to have enjoyed in some respects a fuller measure of their confidence. We find Brunelleschi, brooding over this mark of distrust, preparing his models in secret, and referring objectors to Ghiberti, as to difficulties which he felt sure he could not solve. At last, he succeeded in getting left alone, and was appointed sole architect of the fabric for life, with an annual allowance of 100 florins. At this time the cupola was but partially completed. The rest was superintended by Brunelleschi alone, who conducted the works henceforth with such solicitude, that it is said there was not a stone laid in the building which he had not personally examined.

The cupola thus proceeded, and as it rose the reputation of its architect increased with it. In order to facilitate the progress of the workmen he erected a scaffolding inside the dome, although there is no record of the use by him of any centreing for the arch. On this scaffold he placed, amongst other things, wine-shops and eating-houses for the workmen, so that the latter should not lose time by descending for refreshment.

The citizens were now eager to honour the man who had once seemed to them a fool, and he was accordingly appointed one of the *Signori*, or magistrates.

At length, as he was approaching his seventieth year, the two cupolas were all but finished, and nothing remained but to add the lantern, above the circular space, or eye, at the top of the building. In accordance with his usual dilatory custom, Brunelleschi had left this matter unsettled, and while he was engaged on the models of this final detail of his work, the end came.

After his death the models were disregarded, and laid aside, and the present lantern was added by others. A commencement had, however, been made by Brunelleschi, on a grander scale, so that many doubted the wisdom of loading the dome at this point with so much weight.

Brunelleschi died in 1446, at the age of sixty-nine, and was buried in the church to which he had devoted the best years of his life. His epitaph declares him famous, as the restorer of the practice of ancient architecture, and he figures, therefore, worthily in the list of the Fathers of the Italian Renaissance. He found the Gothic styles of Italy in vogue, but to him the glories of old Rome were the guiding star of his architectural life. He left nothing undone to promote the change to that, which he considered the more perfect way, and when he died, his mantle fell on other great artists, who were henceforward to conduct the movement, and whose works will claim our attention hereafter.

If we are to form a just estimate of Brunelleschi's skill, we must not forget the small amount of constructive ability shown by the architects of his day. It is a great stride in scientific building, to the Dome of Florence from the petty arches of the Italian Gothic, which required to tie even such pigmy structures as the tombs of the Scaligers at Verona with iron bars.

As an example of clever building, therefore, the cupola deserves all the praise it has received, and it is none the less interesting, because it is impossible to suppose that another like structure will ever be erected in a similar manner.

Construction, however, is not fine art, any more than engineering is architecture; and, to most persons, the effect of the great dome is disappointing in an artistic sense. As regards the exterior, it may be doubtful whether an octagonal structure on so large a scale is not a mistake. A circular dome, if beautiful at all, is beautiful from all points of view. St. Paul's, and to a somewhat less extent, St. Peter's, is a noble object, from wheresoever seen. An octagon with a curved outline, on the other hand, presents a different appearance when viewed from the front in elevation, and when seen on the angle, and it would seem scarcely possible to design it in such a manner that it shall look equally well in both cases.

It is, moreover, a less stable form than the circular plan, and we have found that Brunelleschi had to combat with self-imposed difficulties in this respect. We do not, indeed, see the evidence of these difficulties in the cupola as completed; and it may, therefore, perhaps be felt that they do not affect its beauty. There is, however, an absence of that complete satisfaction to the eye which arises from the perfect and obvious fitness which should accompany good architecture.

The dome is, moreover, too high for the internal effect of the church. It cannot be seen until the visitor is near to it, and looks up to it. In this respect, the original design of Arnolfo, springing from a lower level, would, doubtless, have been superior. The construction of a cupola, which shall be equally successful as regards both exterior and interior, has perhaps never yet been satisfactorily accomplished. The Gothic architects acknowledged the difficulty by their adoption of spires, and Sir C. Wren by his well-known expedient in the case of St. Paul's.

At Florence, we have a bold and meritorious attempt, and, if it be not perfectly successful, the grandeur of the idea and the difficulties surmounted are enough to cover the name of Brunelleschi with glory. He had been the pioneer in a great movement, and had extorted admiration from unwilling lips. His fame does not rest on a single work, for in the churches of San Lorenzo and Santo Spirito, we find further evidences of his skill in adapting Roman precedents, while in the Pitti Palace he is seen striking out a path of his own, of even greater originality.

A certain ruggedness, with massive strength and simplicity of form, distinguishes Florentine work, and in Brunelleschi's hands this was dominated by a devotion to the traditions of ancient Rome. In them, he found the inspiration which led him to apply the experience he had acquired, by the study of the baths and temples of the Imperial City, to the addition of an unrivalled cupola, constructed on Roman principles, to the unfinished structure of a Gothic church.

GERMAN POTTERY.

THE Paris Exhibition included specimens, probably the best that could be produced, of the pottery of the present day of every country in Europe, with scarcely an exception save Germany. All these have been duly noticed.* Whether, in declining to exhibit, Germany was guided by a political motive, or the knowledge of short-comings, it is probable that in no section would Germany have shown to such disadvantage as in pottery, and in no other would it have been more apparent how completely she is outstripped by England and France.

German potters have occupied themselves of late years, not merely with imitating in style, but in absolutely copying English and French productions. Pieces in high relief, from which moulds or casts can be taken, have been preferred for this purpose to those with painted decoration on the flat. With no cost for modelling, cheaper material, and no duty, it is obvious that a successful competition can be carried on against the original producers. Even the Government factory at Dresden does little more than reproduce its more famous designs of the last and present century, and the Government factory at Berlin has, perhaps alone emulated the activity of invention shown by the principal potters of our own country.

Besides copying our productions, a certain number of German potters occupy themselves in imitating the Mediæval pottery of their own country. A few, however, have succeeded in modelling small animals of life-like size in terra-cotta, afterwards painted.

The potter's art in Germany of to-day is essentially imitative, and however interesting from other points of view, their pottery exhibits

* See vol. xxxvi., pp. 1217, 1243, &c.

might have been, it is probable that they would have comprised little that would be artistically distinct from the exhibits of other countries, except the reproduction of their own Mediæval styles already alluded to. The originals of these, however, possess such great interest, and so little is generally known respecting them, or indeed about German Mediæval pottery generally, compared to the careful research made into the history of that of Italy, France, and Spain, that some notes respecting it may be of interest. The history and the productions of the still existing Berlin and Dresden factories are so well known that they are not here referred to.

The study of art-pottery productions of Germany have received so small a share of attention that perhaps one of the great surprises which awaits English art-students travelling in Germany for the first time, is to find such magnificent specimens in so many towns. There is nothing to lead them to expect this. Guide-books ,which duly draw attention to buildings of note and to picture-galleries, pass over pottery in silence, and none of the writers on the history of pottery had taken notice of German work till M. Demmin* studied and drew attention to it. Italy, Spain, France, and the East, have almost entirely absorbed the attention of the connoisseur. German pottery, however, well deserves careful study, more even than the Germans themselves have given to it. There are important tombs and pulpits of pottery and enamelled tiles in churches; large stoves of pottery in public buildings; and numberless productions for domestic use of the greatest interest, in museums. Although the largest productions remain in Germany itself, both our British and South Kensington museums contain few but choice specimens.

One general feature will be found in all the productions, in whatever part of Germany they were made, and that is the characteristic way in which the national tone of thought is reflected in the decorations and designs of pottery, just as it is in painting and architecture.

While the mythologies of Greece and Rome have given inspiration to most of the designs introduced as ornament by Italians, German decorations are based on Scriptural or national histories, and classical subjects are rare.

M. Demmin is the only writer who has studied the pottery of Germany collectively, and he has divided it into five groups: (*a*) the Saxon, (*b*) the Franconian, (*c*) the Suabian, (*d*) the Rhenish, (*e*) the Bavarian. This grouping is made on a topographical basis alone, and in no way has reference to distinct schools or styles; to materials or methods of production. He does not give his reasons for his grouping, which in some cases seems arbitrary. He has, however, so far made himself an authority on the subject that in attempting to take a rapid glance at the whole of it in one short article, we shall follow it, though there are many points on which we cannot help differing from him.

1. *The Northern or Saxon.*

In this group M. Demmin includes the productions of all Northern Germany, Saxony, Silesia, and Bohemia, and, according to him, it is in this group that we find the oldest specimens of German art-pottery known. In comparing the progress of this art in Germany with its progress in other nations, it is of interest to know that the date he assigns to the earliest specimens he has seen is somewhere between 1150 and 1200. These are the enamelled tiles from the church of St. Pierre at Rostock, now in the Nuremberg Museum; and there are at the Dresden Museum many specimens from localities along the valley of the Elbe which we believe to be of about the same period. The convent of St. Paul at Leipzig, completed in 1207, but long ago removed, had a frieze of enamelled tiles, on which were represented the heads of Christ, of the Apostles, and of saints. Three of them are preserved, and show that work in high relief, and with three shades of enamel, could be produced at this date. The most interesting and most important illustration of the perfection the art had reached in Germany by the end of the thirteenth century is the tomb at Breslau of Heinrich IV., Duke of Silesia, who died in 1290. It is in the form of a sarcophagus, surrounded by figures in bas-relief, on which lies a life-size recumbent effigy of the duke wearing a diadem, holding a sceptre and shield, and dressed in armour, over which is an ermine mantle. The colours of the enamel are natural and brilliant, and the depth of the folds of this mantle indicate, as M. Demmin points out, a great reliance on the knowledge of baking and the admixture of material.

At Lubeck, Wismar, Luneburg, and Brandenburg there are churches which were built in the fourteenth century, which have their walls, pillars, and ceilings completely covered with enamelled terra cotta. A belfry at Luneburg is entirely of terra cotta. At Dantzic there is a celebrated stove, 20 ft. high, to which is assigned the date of the early part of the fifteenth century; and at Gang is a highly ornamented pulpit of the same date.

Coming to later times, Bunzlau has, from the sixteenth century, been noted for household vessels, among them the "cafetières," glazed on the outside only.*

The most renowned productions of the whole of this group are those of Johann Schaper, who was born at Harburg, and from about 1620 till his death, in 1670, produced exquisitely painted beakers and tankards. Originally a painter on glass, he was skilled in work of great minuteness and delicacy, and when he turned his attention to pottery he introduced a style of equal minuteness. His designs are generally in monochrome, black being more frequently used than any other colour. His style was continued by his pupils after his death. At the South Kensington Museum there are small flint-glass beakers, with black landscapes upon them, painted by Schaper himself. The drawing is of the utmost delicacy, with all the careful finish of the Dutch school. Although M. Demmin has evidently devoted much skill and patience to unravelling the history of German pottery, he is not so infallible as the strictures in his preface, upon what he considers to be the mistakes of others, would imply. For instance, the earliest manufactory of earthenware at Berlin, which he mentions, dates only to 1845, while there is a bas-relief of coloured and glazed earthenware, of the date of about 1720, and made at Berlin, which has been presented to the South Kensington Museum by the Crown Princess of Germany.

2. *The Franconian.*

This group M. Demmin confines strictly to the products of Franconia,—a very limited area as compared with that of the last group. He speaks of it as "dérivé de l'École Saxonne." The most important productions were those of Nuremburg from about A.D. 1,500 onwards. For more than a hundred years the town had produced stoves in earthenware as well as other works, unimportant from an art point of view, when Veit Hirschvogel (b. 1441, d. 1525), a celebrated painter on glass, turned his attention to the decoration of pottery. He has the reputation of having been a good chemist for those days, as well as artist and enameller. His sons, Veit and Augustin, were trained in all that pertained to his newly-adopted profession, and the latter was also skilled in modelling. One at least, of the grand-children, Sebald, also became an artist in pottery, and acquired considerable wealth. So highly was Augustin esteemed that a medal was struck in his honour. The objects produced by this family were chiefly goblets, vases, inkstands, and jugs, and Augustin also produced artistically-decorated stoves.

Stoves in earthenware with various designs of artistic skill, had long formed an important part of the pottery-work supplied by Nuremberg. Many of these are still preserved,† which are richly ornamented with figures representing events recorded in the Bible, the size being about a yard square at the base, and two yards high. Paris, Munich, Berlin, and several German towns possess examples, and we have at the South Kensington Museum two examples from Nuremberg. One in green glaze of 1600 is not a work of importance, and the other of 1630, in brown glaze, is in the Italian style, with caryatides in bas-relief. There are also a number of other objects: among them two sixteenth-century jugs, by the celebrated Hirschvogels, similar in colouring to the yellow, brown, green, and white majolicas of Minton. One has in front two woodmen gazing at a tree which they are prepared to fell, and is a clever composition in high relief. The "long-beard" jugs belong to this school.

At Berlin there are small models of stoves, and in many places there are preserved money-boxes in earthenware, which it was the custom to present at christenings. Baireuth was, from 1000* to 1700, the seat of the production of brown glazed ware, with ornaments in relief. Kreussen, seven miles distant, produced the "Apostle tankards," from 1600 to 1690, a good example of which is at Kensington, dated 1672. Another mounted tankard there bears a procession of German electors robed, and on horseback, dated 1696; others portray bear-hunts and heathen deities. The effect of the many colours introduced in the enamelling, enriched with gilding, upon a brown glaze ground, is rich and harmonious. A small grey flagon, richly covered with incised ornament, filled in as if *cloisonné* with blue, red, and white enamel and gilding, and another ornamented only in turquoise and white, are of the seventeenth or eighteenth centuries; but the place of their manufacture appears unknown, though inferred to have been Nuremberg, from their having been met with there.

3. *The Suabian.*

In this group M. Demmin embraces the productions of Alsace as well as of Suabia (as known in A.D. 1788), which includes the present Wurtemberg, Baden, and part of Bavaria as far as the Lech. The earliest preserved specimens of this group are the stove-tiles from Heilbronn, on the Neckar, decorated with figures and ornaments of Romanesque style, in high relief, which date between A.D. 1000 and 1200. The most prized productions are those which a century later had their origin in some of the smaller towns then isolated from one another in the Black Forest. Some of these works which have come down to us proclaim true artists, of whose training we know nothing, and whose names, even, are in some cases not recorded. The artistic taste, and the skill in manipulation shown, were probably, in many cases, the spontaneous developments of genius, but in tracing the history of art-progress it must not be forgotten that many of the artists had travelled, and no doubt had carried home with them ideas they had picked up. With regard to Schlestadt (the modern productions of which are of French character) it is claimed that it was here that glazed earthenware was invented. Schœpflin, in his "Alsatia Illustrata," has fixed the date of the death of the inventor at 1283.† There are many kinds of glaze, and it would carry us beyond the limits of the present article to discuss the claims set forth by different writers.

Stoves form here, as in the other groups, the largest productions known, and it is either from complete stoves preserved to us, or from tiles which formed part of them, that we have our best knowledge of the high excellence reached by artists in this part of Germany. Some of these are dated and some are not. We will speak first of the dated specimens. The oldest known is the grand Gothic stove made at Oberdorff, which bears an inscription stating it was made by Hansen Seltzmann in 1514. Tiles dated 1533 are preserved from a Gothic stove made at Pforzeim, and there are others, ornamented in relief, and marked G. W., with the date 1582, which are believed to have been made at Nordlingen. Those which are now regarded as the most artistic productions of this group are the stoves of the celebrated Hans Kraut, of Villingen, in the Duchy of Baden, 1520—1595. Five complete specimens of his work and many single tiles are known to us. We possess at South Kensington one of these stoves, a magnificent example, dated 1578, and purchased for 240*l*. It measures about 7 ft. 6 in. in height, and is about a yard broad at the base. The details of the ornament are somewhat in the Renaissance character. The chief interest, however, centres in the middle panel, which is evidently modelled by the hand of a great master, and is in the highest relief, and most judiciously coloured. It represents Mordecai in the costume of a merchant prince, on a richly-caparisoned charger, and the hanging of Haman, and in its vigour and costumes resembles Albert Dürer's engravings.

Besides the stoves and portions of them, there are many other objects of interest. The work of Hans Kraut is further known to us by a statuette of Justice, about 8 in. high, which is enamelled in white, blue, yellow, brown, and green. That which many have regarded as his

* Demmin: Recherches sur la Priorité de la Renaissance de l'Art Allemande. Paris, 1862. 12mo.

* There is near Bunzlau an organ of terra cotta, but the date is not known.

† M. Demmin enumerates nine preserved in the Museum at Nuremberg.

* *Vide* Demmin.

† Enamelled tiles were produced in 1207, according to Demmin.

most artistic work, was the magnificent tomb at the church of the Chapter of the Knights of St. John, at Villingen, which was erected in 1536, to the memory of Wolfgang de Müsmünster. The church was for a while converted into a prison, when the convicts so broke the tomb that unfortunately only one bas-relief, nearly 5 ft. long, has been preserved. At the Cluny Museum, in Paris, there is another bas-relief which probably represents the same Grand Master. It bears the inscription, "Wolfgang von Gottes Gnadem," &c., and is also probably Kraut's work.

At the Town-hall of Augsburg there are three large stoves signed by the artist Adam Vogt, and dated 1620. They are ornamented with figures in high relief, and are otherwise richly decorated in relief. Stuttgart also possesses a stove with the date 1624, which is enamelled, and decorated in polychrome.

Of the undated specimens, there is an important one at Ravensburg, inferred to be of the fifteenth century, which gives in bas-relief the portraits of the emperors of Germany, and there are tiles, besides those already named, at Heilbronn, at Bebenhausen, and Nordlingen, of the sixteenth century.

The artistic power of Augsburg potters is also shown in several smaller objects besides the stoves of Vogt. In exploring the site of an ancient convent of Carmelites at Augsburg, a number of figures in terra cotta were found, which were supposed to have belonged to a building of the date 1420 to 1460. They show how very advanced artists were in modelling, and are of interest as studies of costume. They represent such subjects as knights on horseback tilting, warriors, the infant Jesus, the Virgin Mary, and various figures which, when blessed by the Holy Church, were regarded as charms against illness, or as cures for those who were suffering.

At Schrezheim, the Wintergurst had, from father to son, from 1620 till 1810, produced those curious table services in which each plate or cover represents some animal or vegetable, or something else eatable.

The statuettes so plentifully made at Ulm do not date back further than about 1780. They are chiefly of interest as representing the costumes of the inhabitants of the country of different classes and conditions, the treatment of some of them showing a sense of humour. They were the work of Rummel, a clever artist, though a simple artisan.

4. *The Rhenish.*

The early productions of this group are stoneware and terra-cotta, and may date from the fourteenth century, while earthenware productions do not date further back than the end of the seventeenth century.

Under the general term "L'École Rhénane," M. Demmin groups the works from many towns and villages on the borders of the Rhine, attaching great importance to Frechen, near to Cologne. He claims that the productions commonly called in France and England *grès de Flandres*, should be known as "*Grès des bords du Rhin.*" To the name *grès de Köln*, under which they are known in Germany, he equally objects. The facts which he would wish to see rightly represented in name appear to be as follows, and it will be convenient to take his two objections separately.

We have found that it is not very easy to follow M. Demmin in this part of his work, as his arguments are not focussed, his facts are scattered on different pages, and it is not made quite clear always to which of his Rhenish subgroups he is referring. As his matter stands grouped as it is, one of his arguments would seem to cut equally well in the opposite way to which he uses it, and another, if it has any weight at all, goes rather against, and certainly not for, the point he wishes to establish.

We will first take his objections to the expression *grès de Köln*, and state them as clearly as we can.

There are two points he endeavours to establish. Firstly, that there were no fabriques in Cologne at all; and, secondly, that the so-called Cologne ware was made at Frechen, near Cologne. For this second point no attempt is made to give any proof whatever that we can find. M. Demmin simply asserts "C'est Frechen tout près de Cologne où la fabrication a eu lieu." For the first point there are three facts given.

(1.) In a foot-note M Demmin mentions that he has been much influenced in his opinion by the absence of all traces of the names of potters, modellers, and ceramic artistes in the archives and registers of Cologne, of which M. Merlo has published extracts in his "Nachrichten von dem Leben und den Werken Kölnischer Künstler," and M. Demmin says he does not believe M. Merlo would have thought potters unworthy to rank with painters, enamellers, goldsmiths, embroiderers, &c. It will be noticed that the value of this as a proof rests on the belief that M. Merlo, in making extracts, would have included potters' names if there had been any to include.

(2.) M. Demmin's next fact is that it appears that at Cologne itself no fabriques of pottery existed, because the communal council would not at this time sanction their establishment, in order that the price of wood should not be increased. It was therefore at Frechen, near Cologne, that the industry found a home. It is not stated whence this information was obtained. No indication is given of the period to which it refers. We are therefore in a position to do no more than accept it as a piece of information M. Demmin has somehow acquired, which may apply to a long or short period.

(3.) M. Demmin's third fact surely tells against him, if, indeed, it is worth anything at all. He mentions that the arms of Cologne are met with on a large number of these productions; most frequently on specimens of the early Gothic style. He introduces this to show that Brongniart was wrong about the period of the manufacture of the earliest *grès*, but if the arms of Cologne were on the productions, it seems a proof that they were accepted as of Cologne work, even if they were made at Frechen. Is the distinction really worth making? Again, in his argument further on, against the use of the term "*grès de Flandre*," he says that the first *grès* known in England was called *grès de Köln*, and not *grès de Flandre*. He mentions that the British Museum has preserved a petition, of the reign of Elizabeth, from W. Simpson to Lord Burleigh, asking for a "privilege" for the manufacture of *grès de Köln*. Why did he not write "*grès de Frechen*," if there was no such thing as "*grès de Köln*"? M. Demmin, in using this extract in support of one of his arguments, seems to have overlooked that it tells against another.

M. Demmin's arguments against the use of the term "*grès de Flandres*," we have found just as difficult to understand. But, as we have said, the elements of the arguments are disjointed, and scattered over many pages. He lays great stress on the evidence from inscriptions and subjects of decoration. Germany was "Protestant," Flanders was Roman Catholic. He says, first, that *all* the inscriptions, and nearly all the subjects and armorial bearings, are German. Then, he says, *few*, if any, of these *grès* have Catholic inscriptions or subjects. They are, on the contrary, "anti-Catholic," and the sentences are those of the Reformation, and in proof, he adduces a solitary instance,—that of a jug in his collection. If the inscriptions are to be admitted as having any weight at all, why not mention a sufficient number to establish the point? But, he continues, it seems then evident that the locality of the manufacture of these *grès* was in a Protestant country, since the Flemish Catholics would certainly not have used such devices, *but if an inscription in the Flemish language is met with, the grès was probably ordered by a Flemish or Dutch personage from the German makers!*

That there was an industry in these *grès* at or near Cologne seems established from the petition to Lord Burleigh, unless we assume the name had no locality meaning. But this does not exclude the possibility of there being a similar industry in Flanders. At any rate, M. Demmin's argument, if argument it may be called, leaves the question pretty much as it was before, even though it may be a "*choquante méprise*" not to agree with him. The whole matter, no doubt, needs further investigation, and offers an interesting subject for those who have leisure and opportunity to take it up.

Leaving, however, this controversy, and turning to specimens which have been preserved, M. Demmin has grouped them thus:—

1. *Grès brun* and *Grès gris jaunâtre*.—These are the oldest, and M. Demmin states, though without giving any authority, that they range from 1350. The oldest *dated* specimen he knows is a jug of *grès brun*, signed Engel Kran, 1444. Only three specimens of the *grès gris jaunâtre* are mentioned. One is an inkstand in the form of a Gothic lion; the second is a lamp, with figures of the characters of the fourteenth century; and the third is an inkstand.

These *grès* are whitish in colour, and very slightly glazed. The commonest examples are "canettes," handled jugs cylindrical in form, tapering from the base. They are usually entirely covered with very beautiful ornament, sharp, clear, and often with minute detail. The ornament is generally arranged in diapered spaces, subjects and arms often alternating. Besides these "canettes" are flask-shaped and flat-sided beakers, ornamented in a broader manner. These, owing to the sharpness and finish of the ornament, and the care that it is necessary to bestow upon it, are seldom reproduced at the present day.

2. *Grès gris blanc alcalin.*—The dates M. Demmin assigns for this are from 1500 to 1600, after which the art was lost. The oldest dated specimen is 1537; the next oldest is 1550; and there are several others down to 1594, which is the latest mentioned.

3. *Grès gris* and *bleu*, *gris-bleu*, and *violet*.—These date from 1450 down to the present time, and it is this division which contains the most artistic productions.

Although far more decorative, considerably less care seems to have been bestowed on the *grès gris-bleu* of this section. The appearance of roughness in their finish is enhanced by the alternately blue and drab ornamentation overlapping each other, which gives them a blurred outline. The ornamentation is essentially German Mediæval in character, and is composed of borders in high relief, arms, inscriptions, and subjects,—the latter most frequently of pious inspiration. It seems to have been impressed upon the clay when soft by wood blocks, and the same stamps were used repeatedly. Apart from its characteristic richness, the arms, and especially the costumes, deserve careful study. The favourite and almost only objects of manufacture were flagons or beakers, some of them of almost gigantic size. In even the largest pieces, however, the details of the ornamentation were not increased in a corresponding scale, but band upon band of ornament was added, the whole being completely covered. Further elaboration was sometimes produced by moulding a twisted ribbon round the most salient part of the jug, with the folds standing away from it. The blue colouring was for the most part reserved for the flat parts, the reliefs being left grey. The pieces that are most prized are the ring-shaped jugs, and especially those formed of two rings crossing each other at right angles.

The brown glazes are of somewhat the same, but more ordinary, character and form, and this was evidently regarded as a commoner ware.

This drab and blue *grès de Köln* or *grès de Flandre*, has, owing to the cheapness and facility with which it can be reproduced, been made in very large quantities of late years, and extensively imported into England. The amateur can readily distinguish the new from the old.

In this Rhenish group, M. Demmin includes the terra-cotta with lead glaze made at Marburg from 1500 to the present time. It is now furnished at low prices. The *grès* with blue ornaments, made at Grenzhausen, from 1600 to 1780, M. Demmin also includes in this group.

5. *The Bavarian.*

It is not very easy to understand why M. Demmin has made this a distinct group of his German school. He says "that which I understand by the Bavarian school are the productions of the old Bavarian towns which the influence of Tyrolean art has made itself as much felt as those of the Franconian and Suabian schools," for a large number of works of art which are to be met with in châteaux, show how the art was cultivated in the Middle Ages, particularly in the Gothic time. There is, however, nothing characteristic in the school.

Waterloo Bridge.—The works in connexion with the restoration of the footpaths and the relaying of the carriage-way have just been commenced, by direction of the Metropolitan Board of Works. Messrs. Mowlem & Co. are the contractors, and they have about 100 men at work on the footways, together with machinery for raising and lowering the heavy blocks of granite, about 8 ft. in length and nearly 3 ft. in width, which form the footpath. These blocks average from 8 in. to 12 in. in thickness, and many of them are upwards of half a ton in weight.

ARCHITECTURE AT THE ROYAL SCOTTISH ACADEMY.

THE number of architectural drawings is each year becoming small by degrees and beautifully less. By what seems now to be the established practice, they are consigned to each side of the swing-doors which open into the first of the series of galleries, behind the seats of the check-taker and clerk, who seem to spot the few who push their way into the narrow straits as professional. Very few, indeed, there be who take the trouble, and sooth to say there is little to tempt them to brave the gusts of east wind which now and again attack those who linger in this neighbourhood, but the call of duty is paramount. Presto! The church demands our first attention, and we remark that churchmen of all denominations now seem most ready to avail themselves of the practice of competition. There is consequently a strong temptation to produce something striking, and necessarily there must be a very considerable amount of unremunerative work. Some one must pay for it, and it is most probably taken out of the general public. "There is something rotten in the state of Denmark" which calls for reform.

"Ryehill U.P. Church, Dundee," Maclean & Aitken, is somewhat peculiar in style. The doorways and windows are semicircular-headed, the gables of Gothic pitch and flanked by attenuated buttresses, which terminate in pinnacles. The large window in the principal gable is mullioned, and provided with plate tracery, which spreads out like a fan, and the tower is capped by a dome. It bears unmistakably the stamp of a Dissenting church. The "New Episcopal Church, Forfar," Robert Anderson, is represented by one interior and two exterior views, drawn with Mr. Anderson's usual care and precision. The design is admirable, but we can see very little difference between it and those produced by the architect under similar circumstances for several years back, except it be the trefoil piercings in the east window, which impart a restless unsatisfactory aspect to that feature. The "Design submitted for New Free Church, Kirkcaldy," is semicircular in plan, with a recess for the pulpit in the centre of the straight line. The galleries follow the line of the circle, and are carried on iron pillars, which rise to the roof, where they are boarded over at the tie-beams. There is a continuous clearstory in wood, which is lighted by sloping skylights in the roof. The interior is satisfactory, but the exterior cannot be said to be so. The breadth is disproportioned to the length, a characteristic which is emphasised by the placing of a massive, but well-proportioned tower and spire, at one side. The logical arrangement would have been to place it at the flat end. The principal doorway, again, is in the centre of the circular sweep, and is carried up into a gablet; this also wars against the form of the plan, which is better adapted for a Romanesque or Classical style than for Gothic. Two "Houses building at Colinton" are in the hands of the architect himself, and he is at full liberty to indulge his own proclivities, but we fancy low ceilings and other "fads" will hardly meet with the approbation of even those who admire them in ancient examples. "New School at Stockbridge" is a successful adaptation of Gothic, plain and business-like. The "Sketches for Anderston Free Church, Glasgow," by Campbell Douglas & Sellar, embrace two views of the exterior and one of the interior, and are artistically got up in neutral tint. The site is a steep bank near a stream, and the building looks picturesque and unexaggerated. The style is thirteenth century, of a severe type, but the severity is not carried out in the interior, which is fitted up with galleries which cut into the piers. The clearstory windows would be better without the, apparently, wood cuspings. "Competition Design," David Robertson, consists of a church with adjuncts. The architect has hardly mastered the rudiments of Gothic detail; the spire is especially weak and ineffective. "New Parish Church, Galashiels (exterior)," Hay & Henderson, consists of a nave with aisles, transepts, and tower with spire. The usual proportions between nave and transepts is entirely departed from. They each contain three windows, and the length of the nave is swamped by the transept, which consists of three gables with large geometric windows. The tower and spire, again, are burdened by a multiplicity of crocketed pinnacles, which impart to it a restless unsatisfactory appearance. Still more exaggerated are the various features in the "Competition Design for New United Presbyterian Church, Portobello," James Fairley; towers,' doorways, windows, are all on a scale suitable for a building four times the size.

"The East U. P. Church, Dalkeith, now being erected," R. Thornton Shiells & Thomson, is represented by a delicately-lined elevation, placed so high that it is difficult to make out the detail. It is Lombardo-Venetian in style, and consists of a street-front of considerable breadth, which appears to be carried out consistently with the requirements of the site, which seems to be hemmed in with buildings on each side.

A "Competitive Design for Town-hall and Municipal Buildings, Yarmouth," W. T. Aiken, is a carefully-drawn elevation, "Neo-Grec" in style, exhibiting much refinement in detail and proportion. The dome is expressive, and has been carefully considered. The "Windsor Hotel, Princes-street, Edinburgh, in course of erection," Robert Paterson & Son, consists of an elevation flanked by oriels which rise to the cornice, above which are mansard roofs,—an arrangement which has been so frequently followed of late there that it is becoming tiresome. The detail is orthodox Italian, and the proportions are satisfactory. "Hospital for Incurables, Edinburgh," Kinnear & Peddie, is a business-like yet effective and simple elevation. The central pediment is, however, rather *petit*. The group of buildings for the "Royal Bank and National Bank of Scotland at Paisley," by the same architects, is an effective enough group in the Scottish style. Their "South-east View of Kinmouth, Perthshire," is less effective than some designs we have seen from the same source.

The "Design for the K. Murray Memorial," by Lawrence Beveridge, is after the Eleanor Cross manner, but bald and ineffective. A bust under a Gothic canopy is surely out of place. There is a bird's-eye view of the new Edinburgh Royal Infirmary, placed above the doorway where we can make nothing of it; and a coloured interior of the "Library recently added to the Royal College of Surgeons, Edinburgh," is placed equally high; as also a view of "Gala Musim House." These appear as the works of David & John Bryce.

When next the Royal Scottish Academy condescend to exhibit a number of architectural drawings, it would be well that they arranged them in a common-sense manner, and not symmetrically. As at present, they do not produce an effective *tout ensemble*, and unnecessary difficulties are placed in the way of their being examined.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AT the ordinary general meeting of this Institute, on Monday evening last, Mr. Charles Barry, president, in the chair,

Mr. T. H. Wyatt, the hon. sec. for foreign correspondence, announced the death of M. Coste, hon. and corresponding member, at the advanced age of ninety-two. He was a member of the Legion of Honour, and of the Académie Française, and architect of the Bourse, at Marseilles.* He was one of the earliest foreign members of the Institute, having been elected in 1842. He spent a considerable time in Egypt, where he was employed by the Viceroy on a number of important works. He subsequently published a very important book on "Arab Architecture in Egypt," and on his returning to Paris he was employed on some very large and important works there. Mr. Wyatt added that letters of condolence had been sent to Madame Coste and to Madame Duc, widow of the late M. Joseph Louis Duc.

Mr. W. H. White, secretary, announced the death of Mr. C. J. Adams, Fellow, of Stockton-on-Tees.

Mr. Wyatt announced that he had received a letter from Herr Lepsius, of Berlin, pressing the Institute to elect the Government Architect, Herr Gropius, an Hon. and Corresponding Member. He had carried out a number of very important works,† and was in every way worthy of the honour.

The President said that the election would take place, in accordance with the rule, at the next meeting. The Council, after inspecting a portfolio of photographs of very important buildings designed by Herr Gropius, and carried out under his superintendence, felt amply justified in recommending him to the suffrages of the members.

The following new members were elected, viz, Mr. David Ross, of Dunedin, New Zealand, as Fellow, and Mr. John Slater as Associate.

The President called attention to the fact that Mr. John Gibson, Fellow, had been elected Grand Superintendent of Works to the Grand Lodge of Freemasons, in the room of the late Frederick Pepys Cockerell, and in doing so quoted from a speech by Lord Carnarvon, Pro. Grand Master, some appreciative remarks as to the services rendered by the late Mr. Cockerell, and as to the qualifications of Mr. Gibson for fulfilling the duties of the office.

The discussion then took place on Mr. John Pennethorne's paper on "The Connexion between Ancient Art and the Ancient Geometry, as illustrated by the Works of the Age of Pericles."* The President said that Mr. Penrose was unavoidably absent, but he had taken the pains to commit what he had to say to writing, and his remarks would be read by Mr. Cates.

Mr. Penrose's paper commenced by expressing the indebtedness of all the members of the Institute to Mr. Pennethorne for the long and careful study which that gentleman had given to the subject. So valuable and so important was Mr. Pennethorne's work that he (Mr. Penrose) was very sorry to have to say that he dissented from some of the conclusions of the author. As, however, Mr. Penrose's paper is not yet available for the use of the press, we must defer any extended report of his argument, inasmuch as it involved a large mass of figures and other details not reportable with accuracy when quickly read.

Mr. Watkiss Lloyd said that in common with Mr. Penrose and, he doubted not, many others, he could not but feel that the amount of attention and labour which Mr. Pennethorne had devoted to the subject was worthy of all admiration; and, like Mr. Penrose, he greatly regretted to have to say that he could not agree with the conclusions arrived at by the author. Vitruvius spoke of various extensions and diminutions of proportion which had to be applied by the architect, but they were nothing more than the moderate alterations required for curvature, and really did not affect the architectural proportion, properly so called; they were merely adjustments of the general design. Therefore he did not think that such cases as those referred to by Vitruvius afforded any justification of the principle upon which Mr Pennethorne insisted. Besides, the principle enunciated by Mr. Pennethorne was not applicable to the whole of a building, to the plan as well as to the elevations. On the other hand, his (Mr. Watkiss Lloyd's) principle, worked out many years ago, did apply to the whole of the building. In conclusion, Mr. Watkiss Lloyd mentioned that his principle was explained and illustrated in an appendix to Professor Cockerell's book on Bassæ and Ægina.

Mr. H. H. Statham wished to a say a few words on the question, not so much from an arithmetical as from an architectural point of view. He protested against the indulgence of a tendency to allow architecture to be overridden by figures. Instances of this tendency were furnished by Mr. Pennethorne's beautifully illustrated book, as, for example, in a diagram of an Egyptian order divided into fifty-six parts, of which thirty-nine went to the shafts of the column, three and a half to the base, and three and a half to the abacus. Now, if things were to be divided into such small fractions, it would be quite possible to make mathematical ratios out of the wildest Gothic building that could be selected,—there was no need to go to Greek architecture for that. According to Mr. Pennethorne, Greek architects designed their temples to be seen from one point only, in order that the proportionate ratios of the various parts of the building should appear to be right from that point. There were two points incidental to the argument to which he (Mr. Statham) must take exception. Firstly, this comparison was made,—"To attempt to explain the reason why certain proportions should produce an agreeable impression on the eye, which by universal consent they were acknowledged to do, is, I feel, impossible. In music we can give no reason why certain harmonies and scales should produce an agreeable impression on the ear, or why many other intervals might be selected which would be discordant." Now, as a musical man, he (Mr. Statham) could only say

* Illustrated and described in the *Builder*, vol. xxxiv., pp. 169, 171.

† Some of them have been illustrated in the *Builder*.

* See pp. 174, 208, *ante*.

that that was a complete fallacy. The reason why certain notes harmonised was perfectly known, and was capable of strictly scientific definition, in a manner to which there was nothing analogous in architecture. It could not be arithmetically proved that certain proportions in Greek temples were necessary for harmony in the same way in which it could be proved that two notes must have a certain ratio of vibration in order to harmonise. The second point to which he must take exception was in reference to the alleged authority of Vitruvius for the theory propounded. That author was quoted as saying: "Under every peculiar circumstance, great judgment is necessary in *calculating* the effect that will ultimately be produced;" the word "calculating" being italicised in Mr. Pennethorne's quotation. Now, the original ran thus:—"Cum ergo constituta symmetriarum ratio fuerit et commensus ratiocinationibus explicati, tum etiam acuminis est proprium *providere* ad naturam loci aut usum aut speciem et detractionibus vel adjectionibus temperaturas efficere, uti cum de symmetris fit detractum aut adjectum id videatur recte esse formatum, in aspectuque nihil desideratum." Now, the word "*providere*" did not mean calculation by figures. The chapter, again, from which the quotation was taken, was headed "On the Proportions of Private Buildings," *not* temples; and it concluded (in Newton's translation) with this passage:—"It cannot be doubted that we should diminish or enlarge objects according to the nature of their situation, in order that no part of the work may be unsatisfactory; but this must be effected by acuteness of genius, *and cannot be taught by rule*." That was the chapter of Vitruvius which was quoted as the basis of Mr. Pennethorne's theory. He could not believe that the Greek architects considered that the beauty of their buildings was dependent upon being viewed from one particular point. The point of sight indicated by Mr. Pennethorne, at which the mass of the building subtended an angle of 45° to the eye, was too close for the purpose, to begin with, as the eye could only take in about 33° at one view. Then the calculations were made on three different bases. In one passage in the paper (page 107 of the Institute Transactions), we were told that the vertical heights were commensurate with the length of the *upper step*; on plate 4 of the illustrations it was observed that the mass of the building might be regarded as a cube comprised between the *middle* step and the projection of the cornice; and on page 111 we were referred to the diagonal line joining the extreme angles of the substructure. If "the Greeks had really been proceeding on such a severe logical principle of design as was suggested, it was inconceivable that they should have shifted their calculations from one base to another in such an illogical manner. But the most serious difficulty was one which, though obvious in Mr. Pennethorne's book, had been eluded in the paper read to the Institute. The two fronts of the Parthenon were architecturally identical, but the level of the ground for the eastern point of sight was 10 ft. higher than that for the western; the corrections which were right for one end of the building were, therefore, necessarily wrong for the other end. The explanation suggested for this was still more extraordinary: it was, that a longer diagonal was furnished at the eastern point of sight by the wider extension of the platform at the base of the eastern steps. This platform really died into the surface of the rock at the point to which the diagonal would be referred; and they were actually asked to believe that the real beauty of proportion of the east front depended, in the mind of the Greek architect, upon directing the attention, not to the main mass of the building, but to this subordinate point in the substructure. That was a theory which, he thought, refuted itself.

Mr. Cates, in reply, expressed his regret that both Mr. Pennethorne and Mr. Penrose were absent, as they would no doubt have been able to throw much additional light on the subject. Their absence was especially to be regretted, because, simultaneously with the reading of the paper, M. Lesueur, in singularly bold language, had denied the existence of the refinements in Greek architecture to which Mr. Penrose, Mr. Pennethorne, and others, had devoted so much study. M. Lesueur declared, in language that was unmistakable, that the idea of curvature in the lines of Greek temples was an entire myth,—that, in fact, the curves were entirely due to the subsidence of the foundations. It was not possible that those who had studied Mr. Pennethorne's book, or those who were aware of the mathematical ability of Mr. Penrose, could accept such a statement as that. It was noteworthy, though, that a German writer who visited Athens in 1862 had also made the same statement. But if the subtle refinements of Greek architecture were indeed mythical, how came it that a recently erected building in Athens, the Academy of Fine Arts, of which Herr Hansen, of Vienna, and Professor Ziller, of Athens, were the architects, was so exceedingly unsatisfactory to the eye, except on the hypothesis that it lacked the delicate refinements of the old Greek buildings?—for the proportion and detail were excellent, the material was the finest white Pentelic marble, and the workmanship was only surpassed by that of the Parthenon. Probably the brightness of the atmosphere in Greece rendered the refinements under discussion more essential than they would be in a duller climate. As to Mr. Pennethorne's theory that Greek temples were designed to be seen from one point of view, he thought that theory was indirectly supported by the fact that, as he believed, in no single instance was a Greek temple directly approached. The temples were always approached at an angle, and that certainly afforded some ground for the theory advanced by Mr. Pennethorne.

The President, in closing the discussion, said he scarcely thought M. Lesueur's extraordinary theory as to the curved lines would meet with any adherents in this country. The necessity for adopting expedients to overcome optical effects was recognised by all practical architects even in the present age of unrefined work; how much more so, then, would the necessity be felt by a people so refined as the Greeks? In his opinion, Mr. Statham's remark as to the synchronism of musical chords went a very long way to support Mr. Pennethorne's contention; for it could hardly be supposed that the delicacy of appreciation by the sense of hearing could be greater than the delicacy of appreciation by the sense of seeing, especially by the educated eye. In conclusion, the President said: That a gentleman like Mr. Pennethorne, not an architect by profession, should have such great artistic taste and such mathematical power as to enable him to take up so large a subject, and that he should, after the labour and study of years, come before us to endeavour to explain his views, are facts that provoke gratitude rather than criticism.

It being a quarter to ten when the discussion was concluded, and it being stated by Mr. Colling that his paper on "Architectural Foliage" would take an hour to read, it was unanimously resolved, on the motion of Mr. Ewan Christian, seconded by Mr. Arthur Cates, that the reading of the paper be postponed. The new method of conducting the business thus broke down once more. The sooner the old order of procedure is restored the better.

PRE-ADAMITE LONDON.

MR. EDWIN NASH, F.R.I.B.A., Master of the Merchant Taylors' Company, lectured, by special request, at the Merchant Taylors' School, Charterhouse-square, on Tuesday, the 18th ult., on "Pre-Adamite London," there being a large attendance. The Rev. Dr. Baker presided, and amongst those present were Sir J. Tyler, Major E. Anderson, Mr. R. Johnson, Mr. T. Hicks (master of the Salters' Company), &c.

Mr. Nash commenced by saying that from the title of the lecture some might imagine that he intended to treat of human beings, inasmuch as certain people believed that man existed before the time of Adam, but it was not his intention to do so, though something might be said of life in those early days, however different that life might have been from that which now prevailed. He intended to speak of London in its geological aspect, and to treat of past times which had no written history, but respecting which they had been taught great truths by close observation and reasoning The geological formation upon which London was placed was commonly called the London clay, and it occupied an area which went by the name of the Valley of the Thames, and sometimes by that of the London Basin, because it lay upon a shallow depression in the previously-existing land. The strata peculiar to it were not confined, however, to that particular area, but they extended over a much larger surface with a very irregular outline, and in many detached portions and narrow slips. The main part extended from Newbury, in Berkshire, on the west, to beyond Harwich and Canterbury in the east. It being upon the lower beds of the tertiary division that London stood, they had to consider those beds only or chiefly. In the tertiary deposits the remains of some species of animals were identical with those which now lived. London and its neighbourhood did not possess a very marked geology, it having no high mountains, no grand escarpments, and no deep ravines. Yet London, before it possessed the name, passed through great vicissitudes during ages incalculably remote, and if they observed what had occurred at no more than a small distance beneath their path, they met with evidences of extraordinary things, that happened so deep in the depths of time that no historic chronology could be assigned to them. They further discovered that the tertiary strata,—the sand, the gravel, the clay, of which they were chiefly composed,—rested upon the ancient white rock called chalk, and which was once the bed of a vast and deep ocean, with slightly irregular bottom, having the appearance of being worn away in its surface. The chalk was eventually succeeded by vast accumulations of sand, gravel, and clay, and inasmuch as these were always the produce of water action, they were able to perceive how they came to be deposited. All investigations had shown that during a very long period an active rushing sea was breaking up the surface of the chalk and separating its numerous flint nodules from the chalk, and rolling them backwards and forwards for ages, thus grinding down their rough forms into smooth rounded pebbles and sand. Referring to the changes of climate which had occurred, Mr. Nash went on to say that those slow changes, surprising as they seemed to be, were not really extraordinary, when they considered all the circumstances and the long period over which they had ranged. They were caused by that peculiarity in the movement of our globe commonly called the procession of the equinoxes, whereby every part of the earth's surface was subject to a slow but continuous alteration of position in relation to the heat of the sun, arising from the slow shifting of the equator upon the line of greatest heat, viz., the ecliptic. This was a steady revolution, and was considered to be accomplished once in about twenty-six thousand years, but recent researches had shown the period to be about thirty-one thousand years, and it would be seen that by it all parts of the globe experience once during that time a certain maximum of cold, and a certain maximum of heat. England was now on its way towards the hot period, as was evidenced by astronomical facts, by meteorological observations, and by geological remains, after which it would draw on towards its former cold period. To understand this movement the ecliptic might be viewed as a vast permanent plane passing through the earth, and continuing through the sun, and marking at its impingement on the earth's surface the line of greatest heat. The plane of the equator, on the contrary, together with its poles, was not permanent in relation to the ecliptic, for besides having a slight variation in its angle therewith, it had a slow retrogression over the equinoxial points of the ecliptic line, arising from a slow circuit of its poles round a centre situate about six degrees from the pole of the ecliptic, by which it made a revolution backwards round the ecliptic in about 31,000 years. The consequence of this was that all portions of the earth's surface passed during this long period nearer to and farther from the solsticial points, and thus received a greater amount of heat and of cold in proportion to their distance from those points. Hence, it had become evident that there could be such a difference in climate as would be consequent upon a difference in latitude of about 23°, and this difference, taken independently of other causes of climatic variation, might, with some approach to correctness, be represented by the climate of Iceland and by that of Egypt, the one being semi-arctic and the other semi-tropical. Thus, when the solsticial point arrived at its nearest possible distance from England, London would only be 22½° from the sun's path at its hottest period; and it would be at its coldest period when it arrived at 51½° from the sun's path,—that was to say, when its latitudinal meridian was directly over the equinoxial point. These changes had occurred, and would occur again, if the globe continued to move as heretofore, and were sufficient to account for the manifestations revealed by geology; but it should be noted that they were given as independent of those physical

and local causes which were known to have a great effect upon climate, such as the Mexican Gulph stream in respect of England. As regarded the time when England would again arrive at the tropical period, this might be estimated with much accuracy, and some astronomer should work it out. Suffice it for them to imagine that England would not experience the climate of Egypt until 4,000 years had passed away, and thus, if they took their present average temperature at say 50°, and if they assumed the increase of heat to be 1° in a century, they should have the average temperature at the end of the 4,000 years at 90°. The lecturer then proceeded to minutely describe the fossils found in the lower eocene strata and London clay proper, and stated that though man did not inhabit the world at a remote period, there was an abundance of life always pervading its surface. In conclusion, Mr. Nash said that elementary geology must be learned from books, and this was all that could be expected from boys at school; but, to be a complete geologist, it must be studied in the field, and this was not always an easy matter without long practice. It was a noble and highly useful science. It explained to the architect the materials suitable for his buildings; it enlarged the faculty of observation; it opened to the mind the works of God in their grandest aspect; it confirmed the truths of Revelation; it was, in fact, next to astronomy, the most sublime study in which man could engage.

A vote of thanks to the lecturer terminated the proceedings.

THE CITY OF LONDON SCHOOL COMPETITION.

WE take the occasion afforded by the advertisement of an architectural competition for this important building which it is proposed to erect on the Victoria Embankment, to draw fresh attention to a comparative innovation in regard to the demands made upon architects in such cases, against which it is absolutely requisite, in the interests of the profession, that a decided stand should be made. We refer to the increasingly frequent practice, in drawing up conditions of competition, of demanding from the competitors drawings on a working scale, accompanied by a complete specification, and a detailed description of such practical matters as methods of warming, ventilation, &c.; for all which, we need hardly say, no greater reward is offered than used to be offered at a time when competition drawings were at least tacitly supposed to be confined to a general representation of the scheme of the proposed building in regard to plan and design.

The conditions of the competition referred to are before us. They indicate the intention of erecting a building which, with accessories, can hardly be estimated at less than from 40,000*l.* to 50,000*l.* Three premiums are offered to the three best designs, of 300*l.*, 200*l.*, and 100*l.* respectively, which designs are to become the absolute property of the Corporation, who will recommend that the architect receiving the highest premium should be employed to carry out the building. So far, as competitions go, it seems pretty well. The premiums are in rather more than the average proportion to the extent of the work; and if the drawings were limited, as in all cases of competitions they ought to be, to comparatively small-scale drawings showing the architect's idea as to the plan and design,—showing, in fact, how he would do it if it were entrusted to him,—considering the splendid site and the importance of the building, it might be worth while for young architects, who felt that they had capacities beyond their present opportunities, to risk throwing away a month's thought and hard work for the chance of so good a prize. This is how it would appear on the face of the general advertisement, which we have no doubt has been regarded by many possible victims as an attractive one. But the matter is very much changed when we come to look at the requirements in detail. We then find that the "plans, sections, and elevations are to be drawn to a scale of 8 ft. to 1 in."; and further, that "a full and complete specification must accompany each design, setting forth the mode of construction and description of materials proposed to be adopted by the author, and fully and clearly describing the method of warming, ventilation, drainage, &c., proposed, illustrating the same by means of plans, &c., where necessary." An estimate of the cost must accompany each design, and the author is to give such evidence of its accuracy as the corporation may require.

Now, do those who have framed the conditions know what this means in plain English? If they do not, we will tell them in a few words. Taking the lowest figure we have named as the probable cost of the building (40,000*l.*), a complete set of drawings and specification for such a building, at the usual professional charge of 2½ per cent. (leaving 2½ per cent. for the detail drawings and superintendence), would represent work of the value of 1,000*l.* to each architect competing. The bulk of the competitors get nothing; but of three sets of drawings the corporation propose to take absolute possession, *i.e.*, they are going to appropriate professional work for which the ordinary charge would be 3,000*l.*, in return for which they propose to pay 600*l.* But this is not all. For in spite of the large scale and the complete specification required, every one knows that the selected set of drawings will *not* be used as working drawings, for the simple reason (if for no other) that a competing architect is never really in possession of all the details which would enable him to render the drawings actually available for the contractors. The successful architect, if employed, will therefore have to commence all his work over again, and, as his premium is to merge in the commission, have a large amount of extra work to do for the ordinary commission in return for the risk of getting nothing at all for his work.

We have put the matter in a plain pounds-shillings-and-pence form; and, of course, we cannot wonder, if the public find the architectural profession willing to victimise themselves to this extent for the chance of half a commission, that they should encourage architects in a course so profitable to the employer, who thus gains possession of the complete plans and designs of three architects for a little more than half that sum which, under fair conditions, would be due for one set. We have no desire to impute any unfair intention to those who issue the conditions, who very likely merely think they are taking the usual course. The remedy is in the hands of the architects if they will only employ it. There ought to be a determined stand made against this system of calling for such heavy work upon mere speculation from members of a very hard-worked profession. Whatever may be said about the good or evil of the competition system in the abstract, we at least draw a hard-and-fast line here,—that the drawings demanded ought to be limited to so many only, on such a scale only, as are necessary to fairly show the merits of the author's scheme as to plan and design, leaving details for after-consideration.* If the committee in such a case, having selected the best design, have any reason to doubt the ability of its author to carry out the work practically in detail, they need not have bound themselves to employ him; if the premium is a fair one, and the drawings are sketches only, he is paid for his work and there is an end. But when such demands are made as in the competition referred to (which is not an isolated instance), the inevitable result is that no one is properly paid for his work; the majority get nothing, and even the best man is taxed heavily for the privilege of being employed. We do urge upon members of the profession, in their own best interests, to resist in a determined manner such demands upon them. If the promulgators of competition schemes of such an exacting nature find that no architect of eminence or position will take them up, they will very soon be driven to reason. If architects, on the contrary, will go on allowing themselves to be victimised in this kind of way, we do not see what we can do to help people who are bent on cutting their own throats. We have given them our advice in the plainest terms, and can only hope it will be followed.

The Earl of Stamford and Warrington, at his estate at Enville Hall, near Stourbridge, keeps a large collection of valuable plate, amongst which are heirlooms of ancient date, including fourteen *pots de chambre* of heavy solid silver. A recent unsuccessful burglarious attempt upon these treasures has induced his lordship to order a strong fire-and-burglar-proof room to be built at Enville for their future preservation.

* Except in cases of a limited competition by invitation, and when a fair remuneration is given to every competitor.

FRENCH MEDIÆVAL BUILDING TRADE.*

THE French building operatives in the thirteenth century were generally on piece-work, the pay being sometimes in a lump sum at the conclusion of the job, and sometimes at so much a yard. The proprietor, where the work was going on, found the materials and scaffolding; and, indeed, when the job was a long one, he had to keep in order the tools of the workmen, and to replace them if damaged. In some notes respecting building at the Augustinian Convent, which lasted from August, 1299, to February, 1300, the following entries occur:—"Pro fabricando martellos, pro forge," and also, "Pro amendo martellos massonum." Paris and the neighbourhood abounded in building materials. Mention is made of the quarries of Lourcines, of the Faubourg St. Marcel, those of Mureaux, in the limestone of Charenton le Pont, and the quarries of St. Germain des Prés. Timber is very seldom spoken of, though in a record of the works at the Louvre there are directions as to the felling, chopping, and squaring eight oaks from the forest of Compiègne, which were brought by water to the Louvre to be cut up into planks. No wood required, even for royal buildings, was allowed to be taken from the forests, except from certain parts which were set apart for cutting. There is very little mention made of any apparatus or machinery in use for building purposes. What there is, contains a list of the expenses incurred in making two "engins," which were of wood, and took 147 days' work of the carpenters. Sheds were also built to keep these "engins," which in all probability were some kind of crane.

In all important building works, the contractor was bound by a penal clause in case of unsatisfactory performance. We read that the master masons who came from Paris to Troyes to erect a rood-loft for that cathedral were obliged to execute a bond (for which the mother-in-law of one of them went guarantee) to the Chapter, of 400 francs, to be paid in case the work was not completed to their liking. This was not a very extensive caution money, though probably in those days it may have represented a considerable sum for a working-man to risk. Although, in the parlance of the trade there were two distinct occupations of mason (*lathomus*) and stonecutter (*scissor lapidum*), we find them employed indifferently about the same kinds of work. It was a stonecutter that put bars of iron in the great tower of the prison of Notre Dame, and also put up the gargoyles; while it was a mason who was engaged in laying down stones for the steps from the episcopal palace to the Seine. There were also the stone-squarers in the quarries, the lime-burners, the mortar-makers, and the artisans who fitted up the scaffolding and looked after the earthwork of the foundations and the ground around. In this latter work women were employed,—"pour faire les fondemenz dedenz terre et descombrer la place et la pierre choite pour viii^{xx} lx xix jornées de perriers et de ovriers de braz et xl ix jornées de femmes." (A similar instance of women being occupied in building work occurs in the present day in Germany, where they are employed as hod-women [Handlangerinn] at the rate of 8½d. or 9d. per day). As for the workers in wood, there were carpenters, sawyers, panellers or wainscotters, and roofers. Amongst the carpenters proper were those who devoted themselves more to furniture and window work, and these were called "Charpentiers-huchiers." There was no sawing by machinery in those days, and it was all done by hand. The coverers or roofers were distinguished according as they operated with thatch, slate, or tile. In 1399, one Jean Judas, a mason, was fined by the provost of Paris for having roofed a house with tiles, and thus infringed the rights and monopolies of the roofers. This is probably one of the earliest instances of legalised trade unionism on record. As often as not, the building operative had his food supplied him at the place where he was working, and, indeed, he not unfrequently had quarters provided for him altogether there. One Perrin of Origny was ordered by the court to finish certain works on which he was engaged, at the expense of his keep. "Condempnons Perrin d'Origny, maçon demourant à la Pissote, à faire et parfaire bien et soufisament à ses despens de bouche certans ouvrages de maçonnerie par lui commencés pour Nicholaz Larcher." And in the case of an inquiry into a robbery committed at the Abbey

* See p. 93, *ante*.

of Soisson during some repairs, one of the carpenters gave evidence that he had been working there for six weeks, and that he also had his lodging at the Abbey. The French mason was generally of rather a migratory disposition, and frequently wandered about for long distances in search of work; and when the building operations were of an important nature, it was not uncommon to send for workmen to Paris. We have seen above that this was the case, when a rood-loft was being erected at Troyes. The tendency to migration of masons exists to the present day, and is altogether rather a Continental feature. Many of the masons in Leipsic and other German cities are merely birds of passage, returning to their homes during winter; and the masons of Milan and Padua are in the habit of regularly migrating from the North of Italy into Switzerland and the South of France, where their skilled labour is highly appreciated.

The pay of the French building operative in the thirteenth century was not always made in money, but frequently in kind as well. A contract was made with Mattieu Lepetit for the carpentry of the gateway-tower at Beaufort-en-Vallée for 80 livres, and six ells of good cloth of the value of 6 livres, wherewith to make a coat. In addition to pay, the workmen frequently received presents and drink-money. In one place, we find a present of 23 pairs of gloves given to the masons (the English masons of to-day would scarcely appreciate a *pour boire* in that form); at other times wine was distributed to the carters and labourers on the foundations. Indeed, it was not the thing for the employer or the owner of the house even to go near the scene of building without distributing a certain amount of "backsheesh"; so that those who grumble at the demands made upon them for beer by the British workman, may comfort themselves that the evil was even worse 600 years ago than it is now. The most was made in those days of every little special occasion, such as the laying the first stone, the driving of the first nail, putting in the keystone of the arch,—they were all expected to be commemorated with libations. Certain holidays, too, were religiously kept in the same way. Shrove Tuesday was always marked by a good dinner given to all the workmen, as also Ascension-day, on which occasions the chief of the works and the architect were expected to preside. At the close of the job, the operative had to render to the clerk of the works a statement of his accounts, with a certificate from the architect as to the value of the work done by him. The cost of any bad work was there and then deducted from the money owing to him, and, what is more, he had to give a guarantee as to the thoroughness and solidity of his performances for a certain time. In one MS. it is stated as follows:—"Pour couvrir, later la charpente dessus de treulle pour touz coustumens par Jehan le Platrier *lequel la doit garantir de couverture jusques à III ans en bon estat.*" It would not be a bad thing for the house occupiers of London suburbs if the builders of the present day could be made to give the same guarantee.

HOLBORN UNION INFIRMARY, UPPER HOLLOWAY.

THIS building is situated nearly at the junction of Highgate-hill and Archway-road, immediately in the rear of the Archway Tavern, Upper Holloway. The ground along the whole frontage falls from north to south 23 ft., and it is, therefore, somewhat difficult to show clearly by a plan the mode in which the various departments are connected, for that which is the ground floor at the upper part of the site becomes, under the circumstances, the first floor at the lower portion. The front entrance building is also necessarily at a different level from that of the hospital proper, and consequently, in order to reach the corridor, which connects the various blocks of sick wards, it is necessary to descend by a flight of steps some feet below the level of the entrance.

The chief point of interest in the arrangement of this building is, however, the planning of the sick wards, as it introduces in hospital construction a new method of arranging the beds and windows. This arrangement has been adopted by the same architect in wards erected at two London workhouses for the reception of aged and infirm paupers, and the guardians of the Holborn Union were so well pleased with these wards that they determined to build their infirmary wholly on the same plan. This, however, was objected to by the Local Government Board, who insisted upon the erection of wards designed upon the pavilion principle. After much contention, however, a compromise was effected, and the buildings have consequently been erected half on the one plan and half on the other. This result will, perhaps, be beneficial, as the two systems can be tried side by side.

In our issue of the 11th of January last we gave a description of the Infirm wards of St. Luke's workhouse, and as those of the central portion of the building now under consideration are very similar, it will be unnecessary to recapitulate their details. It will, however, be seen that being for sick inmates, a larger cubic space per patient has been requisite, and consequently the wards are somewhat larger, and the distance apart of the beds is also greater. The positions of the water-closets and bath-rooms are likewise more easy of access to the sick inmates of the wards, being situated in towers at either end, but cut off from the immediate proximity of the wards by cross ventilated lobbies.

The shape of the pavilion wards is similar to that of those in all other hospitals lately erected, but some novelties of construction have been introduced. The windows are made as casements nearly reaching the floor-level, and they open in such manner that the patients lying in bed may be protected from draught. These casements are so constructed as to render them when shut more nearly airtight than the ordinary lifting sashes; but in order to meet the opinion of those who prefer the lifting sashes, the architect has contrived that the upper part of the window shall open in this fashion, and so be used for additional ventilation whenever the weather will so permit. The fire-grates that stand in the centres of these wards are also of novel construction. They consist of an open fire at front and back, and the flues from them descend and pass right and left under the floors to the outer walls, in which they are continued to the chimney-shafts above the roof. The novelty of their construction, however, consists in the sides, back, and top of the fires being surrounded by a wrought-iron casing containing water, and that at the sides of the stove there are two upright coils of pipes through which this water when heated by the fire, circulates. Thus the whole of the products of combustion are utilised for heating purposes, and it will be seen that as the water cannot attain a temperature higher than 212° Fah. the iron over which the fire passes cannot, as is the case with ordinary air body stoves, be so heated as to burn the air impinging against its surface. Another advantage offered by this plan of heating is that a vase on the top of the stove contains the water rising from the lower part when it is expanded by the heat of the fire, and that this water being warmed a slight vapour arises from the vase, which serves to moisten the air of the wards. It should not be forgotten also to add that a channel runs under the floor to each side wall, and communicates with the outer air, thus forming a passage for fresh air to pass from the outside round the stove and the heated coils of pipes into the room. Stoves with descending flues are generally found to "smoke" when the flues get cold through the fires being neglected, or from their being let out during the night, but this difficulty has been successfully combated by encasing the horizontal iron flue-pipe in sand as it passes through the floor. The sand retains the heat of the flue for many hours, and it is only once, therefore, if at all, and then at the beginning of the winter, that the flue will require "piloting." These grates are manufactured by Messrs. Potter & Sons, of 298, Oxford-street.

The ventilation of the wards is effected by purely natural means, and is dependent, therefore, upon the simple and well-known fact that (*cæteris paribus*) heated air will always rise to a point higher than that of the colder air surrounding it, and that in its passage it will carry with it deleterious gases which would otherwise, by reason of their greater density, remain stationary or descend to the floor level.

At the back of the beds there are skirting-boxes with panelled fronts, the panels immediately under the heads of the beds being formed of perforated zinc; and running through these boxes are 4-in. hot-water heating-pipes, which go the whole length of the wards. There are openings in the wall partially covered with perforated doors for the admission of fresh air from the outside, and this air, passing over the hot-water pipes and becoming warm, will be emitted into the room through the perforated fronts of the skirting-boxes and immediately under the head of each bed.

The ceilings over each pair of beds have perforated zinc panels running the whole width of the wards, and covering a channel the full depth (12 in.) of the floor; each of these channels communicates with a large shaft running up the wall like an ordinary chimney-flue. Now, returning to the skirting box, it will be obvious that the greater part of the warmed fresh air will pass into the room through its perforated front, immediately under the heads of the beds, and this air will be drawn upwards, and, passing through the perforated zinc of the ceiling channels, be conveyed by the upright flues and find its exit at their terminations, but it is obvious also that the air in thus passing upwards from the skirting-box to the ceiling would encircle, as it were, the space surrounding the head of the sick patient, and carry with it his emanations, and, therefore, each pair of beds is provided with its own separate system of ventilation, whilst the general ventilation of the wards is supplemented by the central stoves previously described, and by the twelve upcast shafts in the side walls.

We shall look anxiously for the actual results of these arrangements when the Infirmary is occupied.

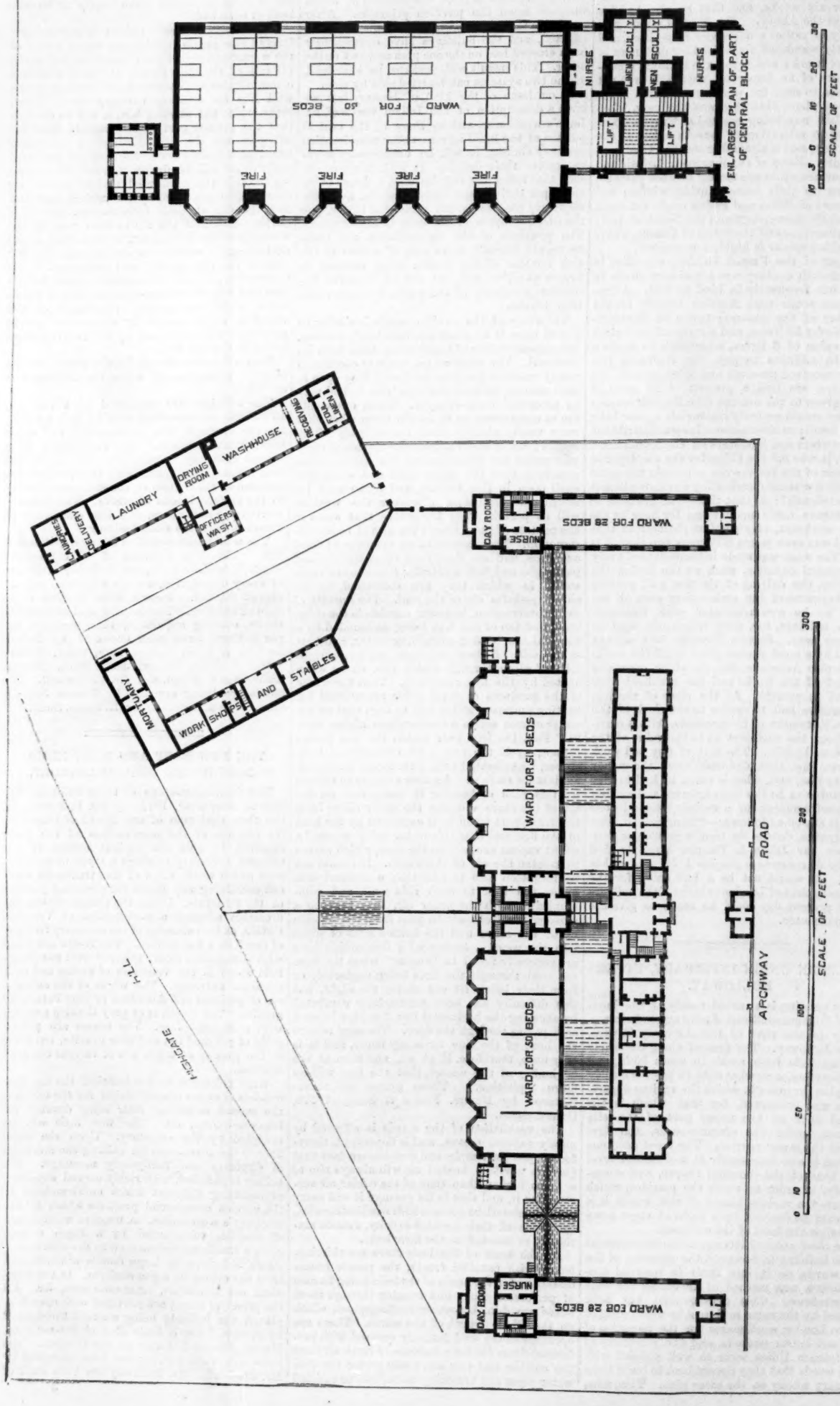
The buildings are connected by a corridor, 10 ft. wide, and on either side of this corridor are the kitchens, lifts, store-rooms, and other administrative offices. In the centre is a narrow tramway running the full length, and thus connecting all parts with the lifts that are situated at the bottom of the staircases leading to the various blocks of wards. The laundry, mortuary, coach-house, and like offices, are all detached from the main buildings.

The total accommodation for sick patients is 624. The cost, inclusive of all engineering works, boundary-walls, and fittings and fixtures of every description, we are informed, will not exceed 80,000*l*. Messrs. John Mowlem & Co. are the builders. The heating and engineering works, cooking apparatus, lifts, sanitary, and gas fittings, have been executed by Messrs. Benham & Sons, Messrs. May, Bros., Messrs. Potter & Sons, Messrs. Jeal, Bros., Messrs. Richardson & Ellson, and Mr. E. Howard. The blinds are being executed by Messrs. Janes & Sons. The architect is Mr. H. Saxon Snell.

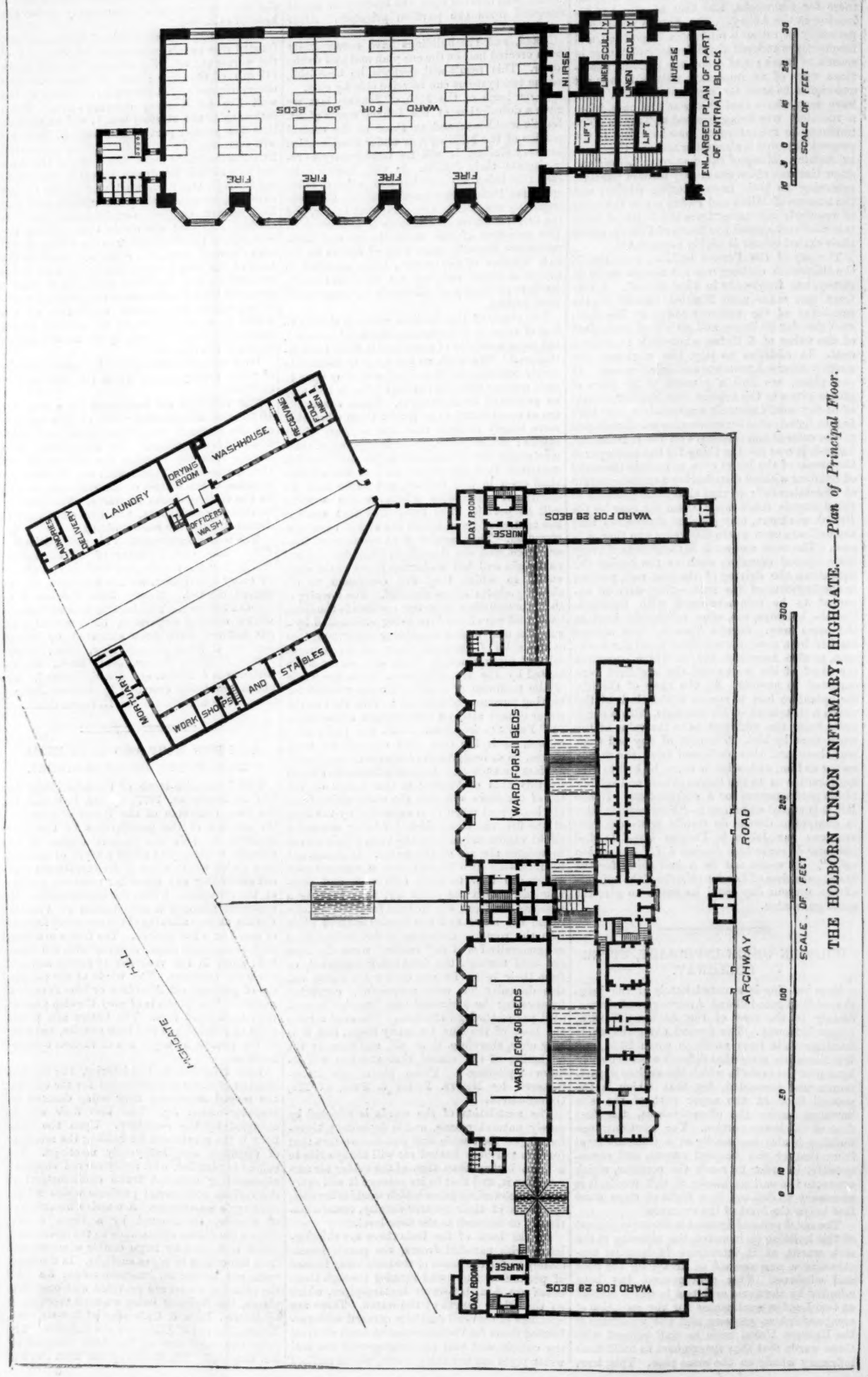
THE NEW EAST AND WEST INDIA DOCK-HOUSE, BILLITER-STREET.

THE foundation-stone of these buildings was laid in December, 1877, by Mr. P. Bosanquet, the then chairman of the Board of Directors. On account of the peculiarities of the place required to suit the various offices, it was thought necessary to adopt a style of architecture which would allow of free treatment without sacrificing any space for recessing portions of the structure. Under the circumstances, the architect adopted a modification of Venetian Gothic, as best allowing of the necessary freedom of detail on a flat surface. The fronts are faced with Box-ground stone, relieved with red Mansfield stone in the voussoirs of arches and over the main entrance. The whole of the columns are of polished red Aberdeen or blue Peterhead granite. The plinth is of grey Cornish granite, with tooth-axed face. The bosses are principally of polished red and blue granite, but some of the groups at angle are of various coloured marbles.

With reference to the interior, the top floor consists of suites of apartments for the officials, the second mezzanine floor being devoted for luncheon-rooms, &c. The first floor will be occupied by the secretary. Upon the same floor is the court-room for holding the meetings of directors and half-yearly meetings. The ceiling is panelled, with richly-carved supports, representing different fruits emblematical of the various commercial products which fill the company's warehouses. A massive mantelpiece of marble, surmounted by a large mirror, gives a handsome appearance to the apartment, which is lighted by large double windows, and from the ceiling by a gas sunlight. In the basement are lavatories, luncheon-rooms, &c. All the principal rooms are provided with open fireplaces, the building being warmed throughout by Messrs. Price & Co.'s plan of hot-air flues. Messrs. Merritt & Aabby are the builders. The stone and wood carving has been executed by Mr. Bradford. Mr. Holloway has been clerk of

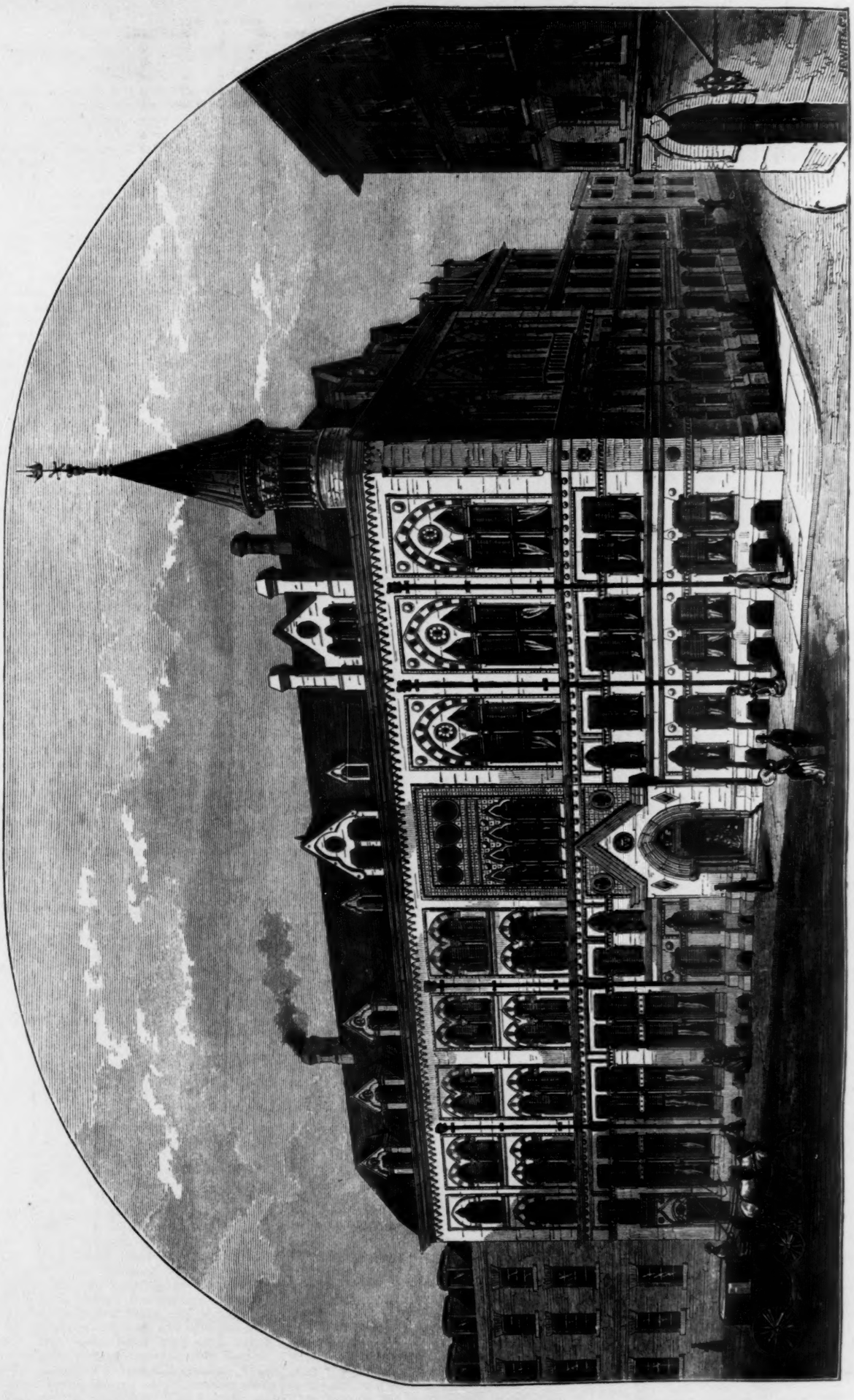


THE HOLBORN UNION INFIRMARY, HIGHGATE.—*Plan of Principal Floor.*



THE HOLBORN UNION INFIRMARY, HIGHGATE.—*Plan of Principal Floor.*

THE HOLBORN UNION INFIRMARY, HIGHGATE.—MR. H. SAXON SNELL, ARCHITECT.



THE NEW EAST AND WEST INDIA DOCK HOUSE, BILLITER STREET, LONDON.—MR. A. MANNING, ARCHITECT.

works, and the whole has been successfully carried out under the direction of the company's architect, Mr. A. Manning.

DISAPPEARANCE OF THE TEPLITZ SPRINGS.

A CATASTROPHE has happened in the valley in which the widely celebrated medicinal baths of Teplitz are situated, the after-effects of which it was at first feared would be fatal to the existence of that favourite Bohemian watering-place as such, and to the prosperity of the greater part of its inhabitants. The principal spring of the old *Curort*, which has given relief to so many sufferers, suddenly disappeared. There is every reason to believe that this phenomenon had some connexion with the sudden irruption of water in the Döllingen colliery near Dux. It was at first not expected that the geological commission which was hastily summoned to report on the matter would be able to do any practical good. Science, it was said, would be powerless, even if the Teplitz basin were less honeycombed by mines than it actually is.

The immediate origin of the catastrophe is described to be due to irruption of water in the mine in question. The first sign of threatening danger was the bursting forth of a water-jet of the thickness of an arm, in a seam in which two miners were at work. A few moments after the seam was burst through, the inrush of water barely leaving time for the two miners to make their escape. In their flight they were able to give warning to others, but the water rose with such rapidity that twenty-six men, out of about a hundred employed, were drowned. The commission of inquiry which arrived on the spot to investigate the causes of the irruption have found that the water has penetrated from below the level of the mine, its temperature (70° to 80° F.) being confirmatory of this view. In the face of this fact, and of the circumstance that the inundation has extended to neighbouring collieries and mines, there is no saying when and where it will stop. The idea of fighting the element is considered hopeless; there remains nothing but to wait and see what the next few weeks will bring forth. A warm spring in the neighbourhood of Dux, the so-called Giants' Spring, disappeared at once after the irruption.

The importance of Teplitz resting almost exclusively upon its medicinal springs, the greatest consternation naturally seized the inhabitants. However, matters are not so bad as they at first looked. The commission charged with investigating the causes of the disappearance of the principal spring, with a view of tranquillising the public mind, have issued the following notification:—

"The undersigned commission announce the fact that the original spring in the town baths has sunk in the course of the day, in such a manner that it does no longer flow from the 'Lions' Heads.' Careful examination has shown that, though the spring has fallen considerably, it has not entirely disappeared. The apprehension which has seized upon a great part of the population, and which goes to the extent of affirming that the spring has been lost, is totally unfounded, and we ask the inhabitants not to lose courage. The town council have taken the necessary steps which will probably lead to raising the spring to its former level. Even in the case, hardly probable, that the spring will not by the measures initiated again be made to flow from the 'Lions' Heads,' Teplitz will still remain the bathing-place of the world it always has been. The spring may be reached by pumping arrangements, as is usual at other mineral baths, and thus brought to the surface in such a manner that the baths may be supplied with thermal water without difficulty. We give notice at the same time that the springs in the Steinbad, Schlangenbad, and Neubad are perfectly intact, and have undergone no change."

(Signatures.)

In order to understand the serious consequences of a disappearance of the spring, and to explain the panic which seized upon the inhabitants of Teplitz, it will be well to recall to mind a few facts with regard to its bathing establishments. The quantity of water which the principal spring alone supplies is, according to Dr. Granville, 1,189,670 cubic inches in an hour. The temperature of the springs is 113° to 119° F. in Teplitz, and 101° to 104° F. in the neighbouring Schönau. The hot springs of Teplitz are very beneficial in cases of suppressed gout, chronic rheumatism, diseases of the joints, contracted limbs, old wounds, obstinate cutaneous eruptions, and paralytic affections. The waters have been used almost exclusively for bathing; recently they have also been recommended and used internally. There are about ninety bathing establishments, many of which are fine buildings. The Austrian and Prussian governments have military hospitals in Teplitz. Between 10,000 and 20,000 visitors, including sometimes imperial and royal personages, visit Teplitz in the autumn.

While on the subject of the disappearance of medicinal springs, it is interesting to cite a few cases of interruption which have taken place at various times and at different places. The tradition is still preserved amongst the inhabitants of Karlsbad, in Bohemia, of how, on the 1st of November, 1755, the famous spring of that town suddenly disappeared for six hours. That day will for ever be recorded in the chronicles of Lisbon as the most awful catastrophe that can well befall a city. On the same day, again, that the great earthquake took place, a new spring burst forth at Baden, near Vienna; but Teplitz also felt its effects. On the same 1st of November, between eleven and twelve o'clock at noon, the original spring disappeared for a minute, after which the water, dyed red, burst forth again with a great noise and in such quantities that all the basins overflowed. This phenomenon was all the more remarkable as the springs of the neighbouring Schönau, according to historians, did not undergo the slightest change, while at the same time all the springs on the east coast of Africa, near Fez and Mequinez, dried up, and reappeared at Tangiers only after the lapse of twenty-four hours. A more modern precedent for the sudden disappearance of springs happened in the town of Altwasser, in Prussian Silesia. This bathing-place, like Teplitz, is situate in the midst of extensive collieries, and one day the principal artery, the Elise spring, began to run more and more sparsely, to disappear at length entirely. This disappearance was not preceded, as in the case of Teplitz, by a mining disaster; the water having probably found an underground escape.

The collieries which have been affected by the irruption of water and been entirely flooded are the following. The Döllingen mine, where the original irruption took place, is the property of a company (the Warnsdorfer Bergbau-Actien-Gesellschaft), and brought to bank, in 1877, about 36,000 tons of coal. The Nelson mine (the owner of which is Mr. William Refeen) produced in the same year 133,000 tons. Inundated are also:—The Fortschritt mine, owners Messrs. Jansenn & Mayer, produce in 1877 about 140,000 tons; Victorin mine, owner Mr. Victorin, produce 75,000 tons; and the Gisela mine, owned by a company (the Duxer Braunkohlen-Bergbaugesellschaft), yearly produce about 50,000 tons. All those collieries supply the Dux-Bodenbach Railway with 42 per cent. of its traffic; and should the inundation also extend to the Kreuzerhöhung mine (which in 1877 paid carriage for 67,000 tons), the goods traffic of that railway would be reduced by half. Six hundred miners have been thrown out of work by the disaster.

WATER FOR OUTLYING DISTRICTS.

THE Public Health Act, 1875, is proposed to be amended by the Bill brought in by Mr. A. Brown, Mr. Whitwell, and Mr. Ryder, to enable local sanitary authorities to supply water to their respective districts; but they must give due notice to all parties interested, and particularly to the owners, lessees, and occupiers of the mills, manufactories, and other works using the water of any stream, for a distance of twenty miles below the point at which the water is intended to be taken.

Section 52 of the Public Health Act, 1875, is to be repealed. It makes it unlawful for a local authority to supply their district with water if it is within the limits of supply of any water company.

If any part of the district of a local authority is situated within the limits of supply of a water company, the authority are to request the company to supply water to their district, the authority paying the company 7 per cent. on the outlay, including the water-charge. The company may supply the water either per house or in bulk, as may be agreed upon. If in bulk the price is to be stated. If the two parties do not agree upon the price, or upon the time within which the supply shall be given, or upon the quantity to be supplied, the local authority may refer the matter to arbitration; and if the company do not undertake to supply water on the terms of the arbitration award the local authority may themselves proceed to effect the supply. These are the salient points of the Bill as it regards water supply.

As regards the making and maintaining of sewers, an important alteration is proposed to be made in the principle on which the charges for these works have hitherto been made. The charge is made upon the district generally, or upon a contributory place generally, whether particular premises are directly benefited or not by the works. The alteration proposed in the Bill consists in making the charge only upon those premises which are within a distance of fifty yards from a sewer belonging to the sanitary authority.

THE FLOODS IN BATTERSEA.

MEMORIAL TO THE HOME SECRETARY.

THE Wandsworth District Board of Works have resolved to memorialise the Home Secretary in reference to the floods at Battersea. The memorial calls the attention of the Secretary of State to the serious damage to property, and injury to the health of the inhabitants, caused by the repeated flooding of houses with sewage-water, and points out the neglect of the Metropolitan Board of Works to provide a remedy, although they undertook to do so so long ago as November, 1877. The Home Secretary is asked to take such steps in the matter as he may deem advisable. The District Board have also agreed to take counsel's opinion as to the liability of the Metropolitan Board of Works for compensation to the persons who have sustained damage. At the meeting of the Wandsworth Board, when the above proceedings were agreed upon, Mr. Tulley, one of the members, said that during the last few days fresh floods had occurred, and people were being drowned out of their houses, losing their health, and in fact dying. Mr. Young, another member, said he was one of the unfortunate inhabitants whose houses were periodically inundated. There was often 2 ft. of water in his breakfast-parlour, which was 2 ft. above the level of the outside ground. In the course of the discussion the chairman explained the reason of the delay in providing the works to stop the flooding, on the part of the Metropolitan Board of Works. He said the Metropolitan Board had been in negotiation with Mr. Denny for the purchase of a site for a pumping-station, and the delay was entirely owing to Mr. Denny's unreasonable demands. The Metropolitan Board had, however, served notices to purchase another site. This explanation had no effect on the District Board, which almost unanimously adopted the course above indicated.

MUNICIPAL BUILDINGS, GREAT YARMOUTH.

THE following references to the plans published in our last number * will further explain the appropriation of the various parts:—

1. Staircase to law courts.
2. Staircase to courts.
3. Turnkeys' lobby.
4. Staircase to court.
5. To jury-room and gallery.
6. To turnkeys.
7. Food-lift.
8. Coal-lift.
9. Staircase to gallery.
10. Judge.
11. Clerk.
12. Witnesses.
13. Witness-box (engraved as 18 on plan).
14. Jury.
15. Dock.
16. Magistrates.
17. Public.

SIR,—In looking over the plan of these buildings, I could not but notice that provision for a fire-engine station was conspicuous by its absence, although the town possesses an excellent engine hitherto stationed at the old town-hall. It is a pity that architects on this side of the Atlantic fail to see the importance of accommodating suitable corporation fire departments, and I have often thought that if town councils would take a greater pride in their brigades, instead of "snubbing" them and keeping them in the background, as is so generally done, the efficiency and status of the service would be considerably raised. THE EDITOR OF THE "FIREMAN."

Trade Unions and the Church.—A series of three conferences has been arranged, to be held in the Chapter House, St. Paul's-churchyard, on Saturday afternoons, March 1, 15, and 29, at three p.m., on the following subjects:—March 1. "How far is over-production a cause of the present commercial depression?" March 15. "Organisation of Women's Industry." March 29. "Arbitration and Conciliation." The aim of these conferences is to bring together,—on a friendly footing upon neutral ground,—the representatives of opposite opinions, who are not otherwise likely to meet.

* See pp. 205, 207, 208, *ante*.

THE INTERNATIONAL CONGRESS OF ARCHITECTS IN PARIS.*

RETURNING again to Wednesday's proceedings, in the second section, "l'Organisation des Chantiers,"—the education of working men,—was the subject taken up. M. Lucas read a paper advocating the establishment of a technical school of apprenticeship for workmen of all classes, instead of the present system, whereby they pick up their information as best they can on the old principle of apprenticeship. M. Lucas would place the establishment of such schools under the management of committees, which should consist of State officials, professional architects, and contractors, and the schools should be established at the cost of the State, of the provincial town, and of the contractors who take their *employés* from them.

In the afternoon of the same day, in the Trocadéro, M. Trélat, director of the École Centrale d'Architecture, delivered an address. The École Centrale is a school which was established in 1863 with a view of giving a more complete education to architectural students, and where they would be obliged to attend as regularly as if in a college or school, instead of being left free to follow out those lectures and courses of study which might please their fancies, as in the École des Beaux Arts. M. Trélat's address, which was *extempore*, and lasted nearly an hour, was full of eloquence, thought, and learning. He contrasted the aim of the architect with that of the engineer. The architect has three conditions to fulfil,—he has to distribute, to form, and to construct. When we examine these three conditions, we discover the great difficulties with which he has to contend, for these conditions are absolutely contradictory to one another. It is for the architect to create the greatest harmony he can with the three. When the plan, elevation, and sections have been distributed in accordance with the conditions required, then the artistic element has to be considered, and various changes have to be made to bring the former to accord with the latter. Both of these conditions, again, may require attention and modification to bring them in accord with the requirements of construction. We constantly see buildings which are admirably constructed from the point of view of their stability, their economy, and the excellence of their materials, but which are incompatible with or contradictory to beautiful forms. There is no style,—no expression in them, and yet they are well built. What is it, then, which characterises the architect's special mission? The engineer can plan and calculate the strength of materials; the contractor can build; it is the architect's mission to unite the two with forms of beauty and expression. To do this he may,—he must sometimes,—sacrifice a part of his art; but if he once allows the unity of his design to be sacrificed, he sacrifices his especial characteristic. Now, what is the engineer? He is young, but he is at present the conqueror. The architect is as old as the world: he has passed through all states of civilisation. The engineer is quite young: he dates only from the seventeenth century. He has only two conditions to fulfil,—to distribute and to construct; he has to arrange the distribution of his building to accord with its proper construction, so as to combine with a minimum of material employed a minimum of stability. With form he does not concern himself,—he does not know what it is, he does not care. There s no question of unity or of form; you do not find it in the work of the engineer. Take a bridge or roof-truss, or a support,—it matters not what. You do not find that uniformity of form, that beauty of expression, to which as architects you are bound to give your first attention. M. Trélat then pointed out that the education required by an engineer was quite different from that which the architect should possess. It would be waste of time; life would not be sufficiently long to allow architects to make those careful and elaborate calculations of the force and resistance of matter,—that study of the minimum of material to produce the minimum of stability. From the day when you require an architect to make calculations of the stabilities and resistances required for each of the materials used in building, he will no longer be an architect,—the artistic element will be dead; there will remain only the engineer. Whilst demanding, however, before all, an artistic education for the architect, M. Trélat contended that other studies should go hand-in-hand with it. These should be of two kinds; first, the sciences,—physics, chemistry, geology; and then the results of technical experience. M. Trélat, therefore, reserved for the last his advice to take up those special studies for which he founded his school. At the time when the lecturer studied in the École des Beaux-Arts, students were in the habit of getting through their course of construction in the first year, in order to be free to pass on to the artistic designs. Their notions, however, of architectural construction were too theoretical to be of much value, and they managed to copy all they wanted from other men's work, and from books, without understanding it. Consequently, they soon forgot what they had learnt, and the practicability of their designs suffered in consequence. It was to remedy this that M. Trélat established his school,—to insist upon a better groundwork of knowledge of the sciences and of the theory and practice of the economy of construction. There was a large staff of professors, and periodical examinations were held. Three years, however, with so many different courses of study, were insufficient for the student to acquire any great proficiency in artistic design, and as a rule I believe most of the students entered the École des Beaux Arts afterwards, but with a sounder elementary education than they would have acquired had they only taken up the courses in the latter.

On Thursday, August 1, there was an excursion to Rheims.*

On Friday, August 2, at the morning meeting held in the Tuileries, the question of competitions was discussed. I was not present, being in the other section. The result of the discussion, in the form of two resolutions, was, however, brought before the meeting at the Trocadéro at one p.m. in the afternoon. The resolutions were as follow:—

1. "That the Minister of Public Works be requested to re-organise the system of public competitions throughout France, and to place them on a basis which would give satisfaction to the interests of artists, the common welfare, and the requirements of state administration.

2. That the basis should consist of a series of rules defining the drawing up of a programme and the nomination of a jury consisting of architects, instead of leaving the selection and judgment to the prefects and mayors."

Mr. R. Phené Spiers expressed the opinion that as the Congress was an international one, it would not be asking too much that the resolutions should be modified so that they would be applicable in other countries. He doubted whether even in France (where the centralisation of power in the hands of the Government gave the latter jurisdiction in all the provinces) the prefects and mayors would be inclined to give up their power and rights of selection, especially when it was the money of their own provincial towns which was about to be spent. He laid before the meeting a copy of the Institute rules on competitions, in which, he pointed out, the utmost demand was that an assessor (who should be an architect by profession) should be appointed to draw up the programme and assist the municipal authorities in their decision.

Señor Belmas and Herr Klein, the delegates from Spain and Denmark respectively, urged upon the meeting the advisability of laying down some more definite regulations, and deplored the mismanagement of competitions.

M. Strohm, the delegate from Russia, contended that architects should always be placed on the committee of adjudicature; and that competitors ought to be allowed to appear before the committee, not only to explain their own designs, but to criticise those of the other competitors (!).

M. Dognée, the president of the Belgian Academy, then delivered an impassioned and eloquent *extempore* address on the Lebanon, Damascus, and Baalbec. It possessed no architectural interest, and therefore I do not propose to give any *resumé* of it.

On Saturday, in the Tuileries, in the Second Section, M. Sedille read a communication from the Commander Da Silva, architect, of Lisbon, president of the Architectural Society there, giving an account of the cathedral of Batalha and its late restoration. M. Sedille, who had been asked by M. Da Silva to read this paper, and had lately visited Portugal, gave a general description of some of the towns he passed through, and which were but rarely visited by strangers,—Crato, Avrantes, and Santarun on the Spanish frontier. Lisbon, of which two-thirds were destroyed by the earthquake in 1755, has sprung up again, being rebuilt in a rich *rococo* style, not wanting in picturesqueness and effect. The convent of Belem, portions of which were reproduced by M. Pascal to form the frontispiece or entrance to the Portuguese Court in the International Exhibition; Calda d'Orena, where there is an interesting church, half buried; Oviedo, a town which still retains its Mediæval character; Alcobassa, where there is a celebrated convent, with accommodation for 999 monks, were also described. Jack Nervil, an English architect who travelled in 1789 in Portugal, was astonished to find that there were more barrels of wine in the magnificent cellars of this convent than there were books in the library. This same Nervil published a book on the convent of Batalha, which is specially interesting to us because he considered that the architect must have been an Englishman, from the resemblance of the building to some of our cathedrals, notably Winchester. It was built towards the end of the fourteenth century by King John I., of Castille, who is known to have imported a large number of architects of all countries, being desirous of constructing a building which should be without a rival. The building has just been restored by the Chevalier Santos Pereira.

The concluding meeting was held at the Trocadéro in the afternoon at one p.m., when the chair was taken by M. Guillaume, Member of the Institute of France, and Director of the École des Beaux Arts, who gave a *resumé* of the work done by the Congress, and then proceeded to distribute the medals and prizes given by the Société Centrale des Architectes; and here it is necessary to give some explanation of these rewards. The large number of prizes given by the Academy of France and at the École des Beaux Arts,—prizes which commence with the *Grand Prix*, which is worth 1,000*l.*, and end with bronze medals,—renders it unnecessary that the Société Centrale (which to a certain extent represents the Institute) should hold any further competitions or give prizes to be competed for by students. It is possible for them, however, to take up another field,—which, by the way, is entirely neglected in England, except in the case of the Queen's Gold Medal,—and to give rewards for executed works. This would seem at first sight to be a very difficult task, and one which might lead to invidious distinctions. It is now five years, however, since these rewards have been instituted, and so far as I could ascertain there seems to have been no ill-feeling or jealousy created, the justice of the decision in each year being always accorded in. There are two classes of prizes,—those given to architects for the best specimens of domestic architecture erected within a certain number of years (five, I believe), and those given to workmen employed in the building trade and to manufacturers of special wares used by architects. I am unable to describe to you the special machinery by which the award of the medal is arrived at. There is, I believe, a committee, which places itself in communication with all the provincial societies, and asks them to submit the names of architects who may have, by their works, distinguished themselves sufficiently to be competitors for these rewards. In Paris a personal inspection of the buildings would be possible; from the provinces, photographs, probably, are forthcoming. The rewards to contractors and workmen are given on a similar inquiry, that is to say, all the architects of Paris and the provinces are requested to report to the committee-of-the-rewards of the Société Centrale the names of any contractors or workmen who have executed work under their orders of such merit as to be worthy of special notice. It must be remembered that the "contractors" here spoken of are not the capitalists and speculators of our country, but the actual workers themselves,—the independent foremen of each trade. The committee deliberate carefully on the reports submitted, and then make their choice, which has to be approved of by the council of the society. I will just run through the principal rewards which were given this year, stating, when I can, the reasons, which will explain the system more clearly. MM. Henri Blondel and Charles Delalande, architects, in Paris, and M. Gosset, architect, at Rheims, were awarded medals for their executed designs of domestic work. M. Henri Revoil was awarded a medal for an important work on the Romanesque architecture of the South of France, known, possibly, to some of you. M. Metz, *architecte-expert*, received a medal "for valuable assistance rendered in the courts of justice"; and to M. Homolle

* By Mr. R. Phené Spiers. Read before the Architectural Association on the 14th ult. (See p. 197, *ante*.)

* Described in vol. xxxvi., p. 826.

the large medal in bronze of the Société Centrale was awarded for his archæological excavations in the Island of Delos. I observed just now that the number of rewards given by the École des Beaux Arts precluded the necessity of awarding any more there. The Société Centrale, however, desiring to show its interest in the several educational establishments in Paris connected with architecture, gives a medal to the student who within the year has received the greatest number of prizes and medals at the École des Beaux Arts; to the École National des Arts Décoratifs (formerly the École de Dessin et de Mathématique), the society gives a medal to the student who has carried off the *grand prix* for ornamental design. To a member of the Société Centrale des Ouvriers Maçon et Tailleurs des Pierres (the Working Masons' and Stonecutters' Society), and to M. Dutheil, stonemason and *piqueur* (setter-out of masonry?), who passed a brilliant practical examination in stereotomy, a silver medal was awarded; and to M. Dumain, stonemason, a bronze medal. This last medal is one of a series which since 1875 have been offered each year for the best work in masonry, in ironwork, carpentry, joinery, the covering of roofs, plumbing, ventilation, and warming, &c. The next medal was awarded to M. Delhormel, aged 73, who in 1829 entered the service of the contractors for the restoration of Amiens Cathedral, and who for forty-five years has been the foreman of masons employed in setting the stonework at the cathedral, having been especially selected for his exactitude, his intelligence, and his upright character by the various architects who have been from time to time the superintendents of the work done there. To M. Banet, described as "good builder" (not contractor), was awarded the next medal. It is recorded of him that when the great demolitions were commenced in Paris about thirty years ago, he was employed in the work, being allowed to sell for his own benefit the materials pulled down, that being his reward for his labour. Finding his *bénéfice* to be too great, after deducting what he thought was a fair remuneration for his services and risk, he offered the remainder to the municipality, who, finding that there was really a considerable profit in the undertaking, since that period have put up to auction the privilege of demolition. To his chief foreman was also awarded a bronze medal. To M. Baudet, civil engineer and constructor of ironwork, who carried out the iron construction of the roof of the National Library and other public buildings, and various gates and grilles of great importance and beauty, was awarded a silver medal, and to his pupil and chief foreman a bronze medal; to M. Meril, forger of wrought ironwork, a silver medal, and to his chief foreman a bronze medal; to M. Bernard, working joiner, and the executor of the archbishop's throne at St. John of Lyons, the pulpit of the church of St. Nigra in the same town, and the restorer of the ancient joinery in the town-hall, a silver medal; to MM. Geneste and Herscher, civil engineers, and manufacturers and patentees of ventilation and warming apparatus used in the Trocadéro, the new Hôtel de Ville, and elsewhere, silver medals; and to their foreman, Signor Ferrari, an Italian, a bronze medal. Any one of you who may have visited the Palace of Versailles will remember the magnificence of the lead cresting which surmounts the chapel roof and other parts of that palace. This has lately been restored under the superintendence of my former professor and principal, M. Questel, the architect of the Palace of Versailles, and to the chief plumber and his foreman were awarded a silver and bronze medal respectively. Two other medals, given to M. Parvillée and M. Leibnitz, the manufacturers of that wonderful glazed terra-cotta work which was used in the decoration of the two porticos or *loges* in the centre of the Exhibition buildings, concluded the list of awards. It must be remembered that it is the custom in France to entrust the different trades of a building to a specialist in each trade. This, of course, increases the labour and the difficulties of the architect; but it has a counter advantage: the specialist-contractor, who has been, and in many cases is still, the actual worker on the building, has the whole subject at his fingers' ends. If you want to develope or increase the material employed in one part of the building, he can point out where you can economise in another part; and as regards the actual cost, he is able to execute the work for much less than would satisfy a general contractor, being content with a small profit, and being able to calculate with greater nicety the actual cost to himself. Beyond this he takes a greater interest in the work than any general contractor can do; it is not a question of so many hours per day, and overtime if you can get it; his heart is in the work, and his desire is, not to make the most out of the job, but to do the best he can for the architect who employs him. I am informed by one of my friends, who has the largest private practice in Paris, that none of his buildings are put up to competition; he chooses his own contractors, who have worked with him for years, and who thoroughly understand the nature of his work. With such a class of men working under you the object of the Société Centrale in giving the prizes mentioned is more easy of explanation; and its success since the establishment of the rewards has quite justified the expectations and the desires of those who instituted it.

Following on the presentation of the prizes was the last address given by M. Desjardins, professor at the Sorbonne, on the Campagna of Rome,—an address full of poetical allusions to the cities of Roman antiquity, but without any special architectural character to warrant my detaining you upon it.

The whole proceedings were terminated by a banquet given in the Grand Hôtel, followed by a concert.

As to the results of the Conference, from a practical point of view I do not think that much was arrived at beyond the fact that a congress of this kind, which has to deal with subjects of extreme variety, which brings together, in many cases for the first time, a number of architects from the provinces and abroad, all with their own particular views and predilections, requires a very great amount of preliminary work,—work which can only be carried out by a number of sub-committes working for months beforehand, and even then with the tradition of former work done. Here in London, at the Biennial Conference, it is the custom to appoint sub-committees (each with its own secretary) to take charge of the several subjects to be treated, to require all papers and essays to be sent up in advance, to send out lists of questions to be answered, to appoint chairmen to preside over the different meetings,—in fact, to reduce everything to system and order before the Congress commences. At the International Congress in Paris, scarcely the titles of the subjects were known before the meeting, and each reader commenced his discourse with an apology for what was called the "tyranny of the title." Excepting at the first and last meetings at the Trocadéro, none of the chairmen or the officers at the high table were chosen till the meeting took place, and then half an hour was lost in the operation. The resolutions were not formulated in advance; in some cases were scarcely put in a definite form to the meeting. No committees were appointed to continue the work, and one's only astonishment is that so much was got through; that so many excellent addresses of a very high intellectual order, though, perhaps, too theoretical, were given; and last, but not least, that so much interest and sympathy were awakened, from first to last, in those who took part in the proceedings. I cannot terminate this address without expressing my personal obligation to M. Lucas, the hon. sec., who, almost unaided, controlled the whole work of the Congress throughout, from its commencement to its termination, and gave me, as your representative, all the documents which it was necessary I should have.

In the discussion which followed,

Mr. L. C. Riddett said he had great pleasure in moving a vote of thanks to Mr. Phené Spiers for the interesting account he had given of the Paris conference. He had been very much struck by the absence of business-like procedure which seemed to have characterised the gathering. In England he thought the congress would have been carried out with much greater order and method. Few meetings of any bodies of men were better managed than those of the two architectural societies in London, and their members must necessarily receive benefit by the knowledge they gained as to the proper conduct of meetings. He had also been very much struck with Mr. Spiers's statement that in France, as in England, there was great rivalry, if not actual conflict, between architects and engineers. He trusted that, as time went on, all antagonism between the two professions would cease to exist,—not only so, but that a perfect alliance would be cemented between them. As to clerks of works, he thought it was scarcely to be wondered at that some members of the Paris Congress had expressed surprise at the existence of such functionaries. He thought the position of a clerk of works in this country most anomalous. Instead of being chosen from the ranks of men who possessed a good general knowledge of architecture, he was generally chosen because he happened to be a "smart" man in some one branch of the building trade. There were many notable exceptions, but he (Mr. Riddett) did not think that, as a general thing, architects had reason to be satisfied with clerks of works. He thought the architectural profession ought to aim at the adoption of the custom in vogue amongst engineers, and just as in that profession there were resident engineers, appointed by and responsible to the chief engineer on all important works, so ought the architects to appoint the younger members of their profession to be resident architects on the works, thus dispensing with clerks of works. Such a change of practice would be of the utmost benefit to the members of the profession.

Mr. S. Flint Clarkson, in seconding the motion, said that the first thing that struck him with reference to the Paris congress was that it was perhaps a matter for congratulation that they did not manage everything better in France,—at any rate, we managed our architectural congresses equally well, for in both countries such gatherings seemed to result in little else but talk. Perhaps, however, it were unjust to compare our English conferences with the one held in Paris last year, because in this country we had never attempted to hold an *international* congress of architects. In connexion with the rivalry between architects and engineers, the great necessity of the times for architects was the bestowal of increased study in meeting modern requirements. There could be no doubt, he thought, that a considerable influence for evil had been exerted upon the architectural profession by the very large amount of ecclesiastical architecture which had been in progress since the Gothic revival started into being; and he was, therefore, glad to see that there was now a tendency, in architectural writing, in favour of students being diverted from the too-exclusive study of antique or old architecture to the solution of modern problems in architectural design. It was, he thought, desirable that students should be sent abroad, not only to study old buildings, but to observe the way in which modern requirements had been met in the various public and municipal buildings of Germany and other countries.

The President (Mr. Florence), in closing the discussion, said that, as one of the delegates from the Association to the Paris congress, he could bear testimony to the zeal with which Mr. Phené Spiers had entered into the work of the Congress. As to the conduct of the proceedings, he had expected to find them conducted with more order and with greater attention to detail than actually prevailed. Certainly the whole scheme of the congress was very well arranged; the general divisions were good, and these were again very carefully divided into sections; but apparently sufficent care was not taken in allotting the proper work to the respective sections. In reference to the paper by M. Charles Lucas on establishments for the technical education of workmen, it was very interesting, and contained a description of the municipal school of industry at Reims, of which an account was given in the *Builder* about the same time.* On the whole, he thought the Congress was very successful, and in his opinion it contrasted favourably with the architectural conferences held in London of late years. All the subjects discussed were of great importance, either practically or theoretically, and had a distinct bearing on the needs of the profession. He did not think the same thing could be said of all our conferences, where many of the papers read were not so appropriate or so specially noteworthy as to be discussed by the Conference: they could have been equally well, and perhaps better, discussed at the ordinary meetings of the Institute. As to the mode in which building work was carried out in France, although subdivision into trades gave the architect more trouble, the work was certainly done better than under the general contract system; and in this connexion he thought it would be well if more freedom were left to architects in England to exclude certain branches of the work from the contract, and to get it done by specialists under his own superintendence.

* Vol. xxxvi., p. 814.

The vote of thanks having been carried by acclamation,

Mr. Phené Spiers, in replying, said he had forgotten to mention that French building contracts were based on schedules of prices, the contract being taken by the builder at so much per cent. above or below the schedule prices. Paris, of course, had its own schedule, and all the provincial towns had theirs. These schedules of prices, of course, varied with the localities according to cost of materials and labour, and a Parisian architect, having to erect a building, say, in Bordeaux, could readily determine its approximate cost by reference to the schedule of prices authorised by the municipality of that town.

OPPOSITION TO THE PROPOSED UNDERGROUND RAILWAY ALONG WHITECHAPEL.

THE railway under Whitechapel to join the East London line, promoted by the Metropolitan and Metropolitan District Companies, in connexion with the Inner Circle completion project, is to be strongly opposed by the local authorities at the East End. At a special meeting of the Whitechapel Vestry which has just been held on the subject, it was agreed to oppose the Bill in Parliament, and to petition against the preamble, and also against the clauses of the Bill, and to appear by counsel before the committee for that purpose. The petition which is to be presented against the Bill refers at length to the proposals of the promoters, and sets forth that its effect would be to seriously interfere with the trade of Whitechapel, and thus to cause great loss to the inhabitants during the construction of the line, besides reducing the rateable value of the parish. The petition further denies the necessity for the line, seeing that there is a railway from Fenchurch-street to Bow, and also from Liverpool-street to Bow, in addition to a double line of tramway along the main thoroughfare. It is also alleged that the Bill is defective in engineering respects, and ill-devised, and that there are no clauses offering sufficient protection to the existing interests that would be injuriously affected by the works. The trustees of the parish of Whitechapel have agreed to join the Vestry in opposing the Bill.

OBITUARY.

MR. PETER LE NEVE FOSTER, M.A.

WE have received, with great regret, intelligence of the death of this gentleman, which occurred quite suddenly at his residence, Wandsworth-common, on Thursday, the 20th ult. The deceased was a native of Norwich, born in 1809, and, entering at Cambridge, took his degree in 1830, and was elected fellow of his college. He took a prominent part in organising the first International Exhibition in 1851, and was two years afterwards appointed secretary to the Society of Arts, which office he filled to the day of his death.

His great administrative ability and extensive knowledge peculiarly fitted him for such a post, and he was ever ready to help forward any movement tending to raise the standard of artistic or scientific culture. His truly genial temperament led him to afford ready access to any who needed information or counsel.

A subscription was started a short time since for the purpose of presenting him with a testimonial, on completion of the twenty-fifth year of his connexion with the society, and it is hoped that the fund may now be augmented, with a view to making it a valuable offering to his widow.

M. EUGÈNE MILLET.

The death is announced of M. Eugène Millet, architect, Paris. He was a pupil of M. Viollet-le-Duc, and was a member of the Commission des Monuments Historiques. He was the restorer of the Cathedral of Troyes, and architect of all the new portions of that of Moulins. He entirely remodelled (during many years) and largely rebuilt the Château de St. Germain. Unlike many of his French colleagues, M. Millet introduced into the drawings he made, generally with his own hand, all the minutiæ of construction and detail. Latterly he had a large practice in Paris. Had the Empire continued, he would in all likelihood have succeeded M. Viollet-le-Duc as Inspector-General of Diocesan Edifices. The Republic gave the post to M. Ballu, and Millet is stated to have felt this bitterly.

THE PROPOSED RESTORATION OF PRESTBURY CHURCH, NEAR MACCLESFIELD.

SIR,—Learning recently that there was a scheme afoot for the restoration of Prestbury Church, and knowing but too well that the term "Restoration" is, generally speaking, a modern euphuism for wholesale destruction and the worst desecration, I have paid two visits of some duration to this venerable shrine, having upon the last occasion the advantage of the company of a friend, a well-known archæologist, whose observations were most valuable and suggestive. We made a careful examination of the buildings, and I shall be glad if you can find space for what I have to say upon this really important question.

The following chronological table, chiefly compiled from a pamphlet issued by the would-be restorers, may be of service to those of your readers who care to visit the church while it is still worth visiting. It shows, too at a glance what a storehouse of the handiwork of different ages the people of Macclesfield and its neighbourhood now possess in the grand old structure.

Part.	When Built.	Notes.
Chancel.	1181–1230.	The only *original* window remaining is a triplet lancet on the north side: there is a very fine rectilinear east window scarcely touched by restorers. The walls lean out considerably, and require some support.
Nave (body).	After 1230.	Some portions may be still earlier.
South Aisle.	About 1350.	The easternmost window on the south side is a beautiful flamboyantly-curvilinear example; the other south windows are plain ones of 1613. The east end window is a restoration of 1856,—a poor, spiritless, copy of probably a good original: the ancient stoup beneath it escaped by a miracle.
Nave Clearstory.	Beginning of sixteenth century.	Has extremely small two-light windows, blocked on the north side; but this scarcely affects the lighting of the church.
South Porch.	Ante 1482.	Almost untouched.
Tower.	About 1480.	
Stained Glass.	1601.	Only a fragment remains in the Legh chapel.
Pulpit.	1607.	In perfect condition.
Nave Roof.	1674.	It is stated that the roof pitch was previously higher: this is questionable.
Nave Pewing.	1707.	A great deal of it much earlier: pieces of the earlier bench ends are incorporated.
West Gallery.	1711.	Very good screen under.
Nave Ceiling.	1720.	
North Aisle.	1739–41.	At the east end is the Legh chapel, with splendid oak screen and wainscoting.
Chancel screen and arch.	End of last century.	

Let us now examine the scheme of restoration. A proposed outlay of upwards of 7,000*l.* (say 10,000*l.* in the long run) is to be applied thus:—First Division: (*a.*) Nave, 2,004*l.*; (*b.*) north aisle, 1,905*l.*; (*c.*) tower, 563*l.*; (*d.*) south porch, 97*l.*; total, 4,569*l.* Second Division: chancel, 920*l.* Third Division: organ-chamber and vestry, 1,795*l.*

Taking the projects *seriatim*, in detail, so far as publicly known. *Imprimis*, the nave is to be completely gutted of its fine oak pewing and west gallery,—a piece of utterly wanton waste, for this woodwork is in excellent condition, and all time-mellowed to a deep rich brown; the pews are most of them comfortable and capacious, and in no sense deserving of the hard names showered upon them by the author of the pamphlet already mentioned. In many of them portions of the early sixteenth-century carved bench-ends are to be found in use as seat-bearers, where they are secure from damage, and accessible to the student or lover of good work who may wish to see them. If disturbed, the whole will inevitably be lost. The old west gallery harmonises with the seating, and, though plain, has some interesting heraldic decorations. It might be straightened and made secure; whilst its destruction would involve that of the handsome oaken screen of earlier date beneath it, and of another such screen between the organ and the ringers' floor.

The present stone floor of the nave, in quiet unison with the simplicity of its surroundings, appears to be condemned to follow the oak-seating, probably to make room for a showy pavement of many colours from the potteries. Still, with a judicious application of soap, sand, and scrubbing-brush, the old floor, with some repairs and the cure of damp, would remain by far the best for its purpose. There is not so much objection to the removal of the flat ceiling of the nave, although it was probably placed there for acoustic reasons, or to make the church warmer.

The restoration guide is suspiciously silent as to the intentions with regard to the nave piers and their varied and interesting caps, but the amount of the estimate leaves ground for fear that, as is usually the case, they may be so tampered with as to annihilate their historical and artistic value. Some quaint little wrought candle-holders, the work of former village smiths, will doubtless be carted away among the builders' *débris*, to make way for some "Mediæval" (save the mark!) metal work. "New lamps for old!"

The fate intended for the north aisle is indeed a piece of restoration *à outrance*. The building is a plain specimen of the style in which Sir Christopher Wren and his disciples worked, but a style which strikes the restorers as "architectural taste at its lowest ebb, when all idea of the beautiful, the decorous, and the decent in the services of the sanctuary had passed from men's minds." Now, would people of this sentiment experience a sensation of relief were St. Paul's burnt to the ground? But meantime, if the custodians of our ancient buildings are to recklessly make away with whatever they cannot understand or appreciate, neither the friends nor the foes of their time-honoured monuments will much longer have any work for their hands. It is proposed to lower the north aisle walls about 10 ft., to abolish the present lofty lights, substituting comparatively short windows filled with heavy stone tracery; further to interpolate sloping buttresses on the outside between these windows. Those who can picture this astonishing metamorphosis will form a lively conception of the effect of these thoroughly Gothic features embedded in the strictly Classic masonry of the present wall, with its Classic plinth-course! The thing is really too preposterous. Geometric tracery, too, is spoken of, although there does not appear to be an atom of work of the Geometrical period about the whole place.

The restoration pamphlet bemoans a "general gloom and disfigurement." Truly the edifice shows signs of neglect, many of the windows being obscured by repeated coats of what *once* was whitewash; but does no better remedy for this suggest itself than *the reduction by fully two-thirds* of the lighting capacities of the north-aisle windows? In point of fact, it is these very Wren windows which now brighten

the whole church, and there is an excellent breadth and repose about the lofty round-headed openings and their filling of undulating tinted glass in plain leadwork.

(*c.*) Why "*renew*" the tower battlements? The present ones are the original ones, deeply scarred by the storms of centuries. Why not secure and sustain these? Will spick-and-span new copies harmonise better with the grave antique tower below? Whence the authority or desirability for the innovation of new pinnacles in the centres of the sides? It would be interesting if any one of your readers could explain the meaning of the curious carving of a pair of shears or scissors now upon the south side of the old embattlement.

Then, again, why sweep away the outer stone staircases on the sides of the tower, which so enhance the picturesqueness of the west-end view? One of them needs but little attention, and the other might, with some trouble, be maintained.

(*d.*) The south-porch floor is to be lowered, whereby the destruction of the present old doors and the very early stone seats built into the sides of the porch will become necessary. Why need all this be attempted?

The second division of the restoration scheme comprises the destruction of the present chancel arch, which corresponds with the chancel roof, and I presume of the present chancel screen also, which is about a century old, interesting and quite perfect. Then the chancel arch is to be "restored," which means probably that a brand-new copy of the earliest one (any trace of which is almost obliterated) is to be erected,—an extravagant idea when we know that this original chancel arch must have been designed to accompany roofs of very steep pitch, not low ones, such as the present.

The third division consists of the proposal for a new organ-chamber opening both into the chancel and north aisle. This wildly revolutionary scheme will demolish the ancientest feature of the whole church,—the lancet triplet window on the north side of the chancel, with its trefoil mullions and well-moulded caps. Let this gash be cut in the chancel wall, and the adjoining old vestry building be overthrown, and it seems almost a certainty that the whole chancel, already insecure, must crumble to the ground. Are we to suppose, then, that an entirely new chancel is contemplated as the crowning performance of this restoration? Further incidental to this part of the enterprise will be the removal of a number of memorial brasses and marble monuments, the loss of the east window of the north aisle, with its fragment of old glass, and an unknown quantity of chopping, lopping, and sawing of the beautiful old oak-work of the Legh chapel.

But have not the parishioners of Prestbury much good sense, too much love and sympathy, for their reverend old edifice to vote the necessary supplies for its spoliation and degradation? It is the bounden duty of all who in any way can do so, to resist such deplorable undertakings to the uttermost; for these reliquary-houses of the arts of past periods are the finest of all human monuments.

A Member of the Society for the Protection of Ancient Buildings.

DRAINAGE WORKS.

Wood Green.—A new pipe sewer, called the Southgate-road sewer, is approaching completion. It commences by a junction with the existing main sewer at the Wood-green end of Lordship-lane, and runs under Jolly Butchers'-hill and the High-street to the Bowes Park Estate (belonging to Mr. Alderman Sidney), where the parish of Edmonton joins that of Tottenham, the entire length being 1,400 yards. The average depth is 30 ft., the greatest 45 ft. The principal part is through strong London blue clay. The pipes are 18 in. in diameter, with pugged clay joints. There is a manhole at every 500 ft.,—ten altogether. These manholes are composed of 9 in. brickwork, and are oval on plan. That near St. Michael's Church is 45 ft. deep, and that close to the Fishmongers' Almshouses, 38 ft. There are ten ventilators. There are also junctions for connexions with house sewers every 50 ft. In order to save expense, these junctions are brought up within 6 ft. of the surface, and the terminations run the way the general body of sewage will flow. Each of these junctions will be able to take the sewage of a number of houses. The work has been carried out, from plans by the surveyor to the Tottenham Local Board, by Mr. John Bell, of Wood-green, the contract price being 2,637*l.* 18s. 6d.

CONVERSION OF THE HACKNEY MASONIC HALL.

The Hackney Public and Masonic Hall, which was erected by a company a few years ago, at a cost of about 3,500*l.*, has just been purchased by a body of capitalists, and is intended to be appropriated to other purposes than those for which it was originally built. At present the building remains in an unfinished state, and the intention is to complete it for church purposes, Sunday schools, concerts, and lectures. In front of the existing building spacious rooms are to be erected, and when the hall is finished there will be accommodation in it for 2,000 children. It is estimated that about 4,000*l.* beyond the purchase-money will be required to complete the building for its future intended purposes. It will henceforward be known as the Morley Hall, this name having been given to it in honour of Mr. Samuel Morley, M.P., whose liberality in this part of London is said to have been freely exercised.

COMPETITIONS.

Proposed University College Buildings, Bristol. A meeting of the council of the University College was held on the 20th ult., at the Fine Arts Academy, for the purpose of selecting an architect for the new building that it is proposed to erect adjacent to the Grammar School in Tyndall's-park. Mr. F. N. Budd, the chairman of the committee, presided. Eight architects sent in designs and plans, viz.:—Mr. Henry Crisp, Mr. Stuart Colman, Mr. C. F. Hansom, Mr. Moncrieff, Mr. S. C. Fripp, Mr. J. H. Hirst, Mr. H. E. Edwards, and Messrs. Lysaght & Scoones. After giving the designs some hours' consideration, the council decided that they would not definitely adopt any plan, but that whatever building might be erected, Mr. C. F. Hansom should be the architect. Mr. Hansom submitted plans of a Tudor building, the larger one containing 12,000 feet of space, and the smaller one 10,000 ft. The portion that he proposes to erect at first is estimated to cost 14,000*l.*

Taunton.—The proprietors of the North-town Nursery Estate, having advertised for plans for laying out the property for building sites, received about 100 sets of plans from architects in all parts of the country. In the work of selection, Messrs. R. Barnicott and George Saunders, jun., the owners, were assisted by Mr. Davis, builder, of Taunton. The premiums were awarded as follows:—No. 1 (50*l.*), Messrs. Habershon & Tawckem, 38, Bloomsbury-square, London, W.C., and Newport, Monmouthshire; and No. 2. (10*l.*), Messrs. Poole & Jones, Wandsworth-common, London, S.W. The two plans next in order of merit were from Messrs. Medland & Son, Clarence-street, Gloucester, and Messrs. Enil & Clive, Chepstow.

OPEN SOIL PIPES AND FROST.

Sir,—I was glad to see Mr. Norman Shaw's letter in your issue of the 15th ult., as it gave some valuable experience on a very important question from a sanitary point of view. The distinguishing feature of the modern sanitary system of drainage is that all drains and discharge-pipes are, as far as possible, kept outside the houses, and opened freely to the air by "disconnexion" and ventilation. That waste-pipes from sinks, baths, &c., should be so treated is now generally admitted, but objections of various kinds have been raised to this proceeding in the case of soil-pipes: witness the correspondence in your paper last year. These objections had all been proved by experience to be groundless, except that we were waiting for evidence to prove or disprove the apprehension that the system would be disarranged by frost. There was strong reason to think that this fear was as groundless as the others; at the same time it was impossible to affirm with certainty that it was so, as there had been no really cold winter since the system of disconnecting soil-pipes had been carried out to its full extent. We have now just passed through the coldest winter there has been for the last forty years, and have therefore had an excellent opportunity of bringing the objection to the crucial test of actual experience.

Mr. Norman Shaw has given you his experience, which of itself ought to be almost conclusive, as he has carried out the system of disconnecting soil-pipes more boldly than most people, and his own house is situated in an exposed position on Hampstead Hill. It is important, however, to collect as much experience as possible on the subject, and you may, therefore, like to know mine, as I have been at some pains to investigate the matter. I have obtained particulars from forty-seven houses, schools, institutions, &c., in London and different parts of the country where I have myself superintended the execution of the drainage, and therefore know all the details of the arrangement, and the following is the result of my investigation:—

In the houses in question the soil-pipes are all open at the top for ventilation, and (with one or two exceptions) all cut off at their lower end from the sewer or main drain by open disconnexion, the vast majority of the pipes are all outside of the house. I find that in *no single case* has the outside disconnexion of the soil-pipe frozen, and in only one case has there been any freezing in the soil-pipe itself. The soil-pipe in which the freezing occurred was curiously enough for the greater part of its length inside the house, and the freezing arose from a leaky valve, which allowed a constant trickle of water down the pipe. Directly the leakage was stopped the freezing in the soil-pipe stopped, though the frost continued. In the remaining forty-six houses, schools, institutions, &c., containing considerably more than 100 open soil-pipes and disconnexions, these worked throughout the frost without a single hitch.

Mr. Norman Shaw and myself are entitled to claim for this experience that it proves the safety of our disconnexion system against injury by frost. My own single exception is one of a kind that proves the rule. A continuous trickle of water would, of course, freeze in an exposed pipe of any kind. The reason why we are not troubled with frost in the open soil-pipes in the fashion that people expected is, that with our system in good order we keep the pipes empty to the completest possible degree, and just as there is nothing in them to stink, so there is nothing to freeze.

Rogers Field, M.Inst.C.E.

POSTAL REFORM.

Sir,—Within the last few weeks we have sent out a good many hundred circulars to various parts of the West of England, and were surprised to find them all surcharged, because, forsooth, they contained four thin pieces of paper about half an inch square, each spread with calcarium. There was no pretence that they were overweight; but after a correspondence with the General Post-office in London, we were obliged to be satisfied with the secretary's dictum that each packet is liable to extra payment (greatly, we fear, to the annoyance of our customers as well as ourselves), because the thin wash of colour was spread direct with a brush instead of being first spread on a lithographic stone, and then transferred to the small pieces of paper.

It appears, by yesterday's Parliamentary reports, that Government has in contemplation an Act for the amendment of some of the anomalous regulations of this department, and it is to be hoped that sufficient outside pressure may be promptly brought to bear upon it, to secure the public for the future from the blunders and imperfect definitions in force with regard to the book and sample post, as well as securing greater liberality with regard to the whole management of the half-penny post.

J. Sessions & Sons.

VACANT APPOINTMENTS.

Sir,—In reply to a letter signed "P.," which appeared in your issue of February 22nd, I beg to inform the writer that a circular was on the 14th inst. addressed and sent by post to each candidate for the Surveyorship of Skipton, informing him of the appointment of Mr. Arthur Ramsden, of the borough surveyor's office, Huddersfield, to the vacant situation. John H. Ellis, Clerk to the Board.

BOOKS.

Sir,—Will some fellow-reader kindly give me advice as to buying the best *elementary* works on Architecture; also the prices where they can be obtained?—And oblige

Youngster.

DANGER FROM PLUG-HOLES.

UPWARD *v.* WEST MIDDLESEX WATERWORKS COMPANY.

The plaintiff in this case (tried in the Exchequer Division on the 25th ult., before Mr. Baron Huddleston and a special jury) sought to recover compensation for personal injuries caused by the alleged defective condition of a plug-hole.

The defendants denied their liability, on the ground that the plug-hole was of the description generally used.

The plaintiff is a civil engineer, living in Linden-gardens, Uxbridge-road, and carrying on business in Great George-street, Westminster. While he was walking with his wife to church on Sunday afternoon, the 9th of February, 1877, and crossing the road at the junction of Linden-gardens and Uxbridge-road, his wife asked him to step back, so as to avoid a Hansom-cab. In doing so his foot caught in one of the defendants' plug-holes, and he was thrown down with such violence that he was much bruised and shaken, and one of his ankles became permanently injured.

The jury gave a verdict for the defendants. Judgment was entered accordingly.

MASTERS AND MEN.

Jedburgh.—The wages of the Jedburgh masons have been reduced from 7d. to 6½d. per hour.

Greenock.—In consequence of the intimation of the Greenock master masons of a reduction of a ½d. per hour, the men have, at a meeting, referred the matter to the Central Executive at Aberdeen, by whose advice they will be guided.

Carlisle.—A suite of shops on the Victoria Viaduct have just been completed, for Messrs. Johnston, Brothers. Messrs. Hetherington & Oliver were the architects.

REPAIR OF CHURCHES UNDER THE METROPOLITAN BUILDING ACT.

AT Southwark, the owners of St. George's Church, High-street, Borough, were summoned before Mr. Partridge by the Metropolitan Board of Works for an order to take measures for securing the head of the south-west door and west front of the parish church, and so much of the brick and stone work of the front or flank walls as was in a cracked and otherwise insecure condition.

Mr. Roger Smith, district surveyor for St. George the Martyr, Southwark, said that on the 7th of January he made a survey of a portion of the west front of St. George's Church. He found it in a dangerous condition, and certified that fact to the Metropolitan Board of Works. He was of opinion that the head of the doorway was in great danger of falling.

Mr. Partridge asked what material it was composed of.

Witness replied that it was of heavy stonework, and might fall on the doorsteps leading to the pavement and public streets. It was dangerous to persons more especially entering and leaving the church. The head of the doorway ought to be shored up as a temporary security.

Mr. Partridge asked what would be the probable expense.

Witness replied about 30*l.* or 40*l.*

Mr. Partridge observed that he understood the churchwardens were in court. Did they wish to say anything on the subject.

Mr. Robins, the senior churchwarden, said they did not wish to shirk their duty. They were aware that portions of the front of the church were in a bad condition, and they had placed the matter before the Vestry. The latter had repaired the interior and the exterior, and ought to pay for the repairs required by the Metropolitan Board of Works. The legality of doing so was disputed, and to test that point he had placed the whole of the facts before counsel, and on Tuesday the opinion would be before the Vestry.

Mr. Napier thought the churchwardens could make a voluntary rate for the repair of the church, as it was a very small sum.

Mr. Partridge observed that about two years ago All Saints' Church, Paddington, required to be repaired, and that was done by a voluntary subscription among the congregation. He then made an order for the repairs to be carried out in six weeks

Mr. Robins trusted that before that time the vestry would do all that was required.

VARIORUM.

WE mention at once that "Lectures on the Rise and Development of Mediæval Architecture, delivered at the Royal Academy, by Sir Gilbert Scott, R.A.," has been published by Mr. Murray, as many of our readers are simply waiting the announcement in order to obtain the book. It forms two handsome volumes, with a large number of illustrations, and will receive full consideration at our hands in due course. ——We would mention also the publication of a "History of Egypt under the Pharaohs, derived entirely from the Monuments, by Henry Brugsch-Bey," and translated by the late Henry Danby Seymour (John Murray),—a book which should be read in conjunction with the new edition of Sir Gardner Wilkinson's work, lately reviewed in our columns. The "History" is in two volumes, and has coloured plates and maps.—— The March number of the *Nineteenth Century* includes two articles that will specially interest many of our readers,—one on "Artistic Copyright" by Mr. Holman Hunt; the other, "The Evils of Piecework" by Mr. W. Latimer. Mr. Gladstone, too, contributes a very elaborate and remarkable paper "On Epithets of Movement in Homer."——We have before us, in one volume for convenience of reference, "Debrett's Peerage and Titles of Courtesy," and "Debrett's Baronetage and Knightage," for the current year, and a very important, indeed almost essential, volume it is. "Debrett" has been a standard work for so many years, and the care taken in annually reviving the lists is so well known, that we need do nothing more than mention the appearance of the new edition. ——The "Boy's Own Paper" is intended not only to provide the youngsters at home and at school with wholesome reading, but to supplant, if possible, some of the literature the injurious effect of which all deplore. The first monthly part, just now issued, includes a large amount of amusing reading, with lots of pictures for sixpence.

Stannah's Patent Stuffing-Box.—Mr. J. Stannah, engineer, has patented a new stuffing-box, which appears to deserve examination. Some of the advantages are, the packing can be kept tighter; at the least, two loose parts are saved, the gland and one screw; the engine or machine to which it is applied is rendered more compact; the liability of the rod to get jambed, through the ordinary gland being unevenly tightened down, is done away with; and to put more packing in it is only necessary to take out one screw. The patentee has adopted the arrangement in his "patent pendulum pumps" to very great advantage. It renders them more convenient, lighter, cheaper in construction, and more effective, through the packing being tighter.

Miscellanea.

The Guild of St. George.—The first ordinary general meeting of Mr. Ruskin's Company or Guild of St. George was held in Birmingham last week. The Company was formed for the purpose of buying land in England, and thereon to train into the healthiest and most refined life possible as many men, women, and children as the land can maintain in comfort. The vital principle of the guild is that whatever profit is made out of the management of the land is to be applied to the comfort and welfare of the workmen themselves. Alderman Baker presided, and read a letter from Mr. Ruskin in which he said, "I never contemplated any legal difficulties of the kind I meet with. I entirely decline any further responsibility in such matters. The office of master as defined in *Fors* is one of authority over persons voluntarily rendering obedience to great principles, and not authority enforced by law at present constituted. For all the organisation of guild, a clerk or secretary must be appointed to be responsible, with directions from solicitors, for I am virtually dead to such business." A report from Mr. Ruskin was read, stating that the guild had estates at Sheffield, Bewdley, Cloughton, Mickley, Barmouth, and 500*l.* vested in Consols.

Consequential Damage. — Mr. Under-Sheriff Burchell presided over a special jury at the Middlesex Sheriffs' Court, in the case of "Fitzwilliam and Hall *v.* The London School Board," in which a question arose as to "consequential damage" to the Hall Park Estate, Paddington, by the London School Board taking two houses in Campbell-street for a school. The sum of 426*l.* 7*s.* was agreed upon as to the houses, and the principal question was the damage to the rest of the estate by the severance. The evidence on the point was conflicting. The surveyors for the claimants estimated the damage at 1,000*l.*, and described all schools as a nuisance to property, except of the lowest description. On the part of the School Board several surveyors stated that, so far from damage being done to the property by the school, a benefit would be conferred on it. The neighbourhood was inhabited by artisans, and schools in such places did not injure property. The jury, after a brief consultation, gave 424*l.* for the severance, which, with the value of the houses, made the verdict of 886*l.* 7*s.*

Newspaper Press Fund.—The report read at the annual meeting, held on the 22nd ult., stated that the roll now comprises 275 members resident in London, and 120 in the country, making a total of 395, of whom 81 are life members. The grants to members and the relatives of deceased members during the past year were forty; the number of persons assisted was twenty-seven, and the amount granted 1,082*l.* 19*s.* The grants to non-members were twenty-one; the number of persons relieved sixteen, and the sum disbursed 102*l.* 5*s.*; making an aggregate of sixty-one grants to forty-eight persons, and the total amount paid 1,185*l.* 4*s.* 700*l.* Canada Four per Cent. Guaranteed Bonds has been purchased, the society's investments in the hands of the trustees being thus increased to 11,450*l.*

London Cottage Mission.—A large concourse of hungry children on Wednesday again visited Conder-street Hall, Limehouse, to partake of the eighth Irish stew dinner which had been provided by the London Cottage Mission, of 14, Finsbury-circus. The children's parents, being mostly unemployed, the little ones are deprived of the nourishment they require, and though the weather was not cold, they ate as ravenously as ever the warm and nourishing meal. This week, in addition to the dinner, free teas have been given to a large number of children. We learn with regret that this work of charity must cease, unless the benevolent send help, for we are given to understand that the funds are exhausted. This mission has free reading-rooms for working men, extensive Sunday schools, and does much good work. Contributions may be sent to Miss F. Napton, 304, Burdett-road, Limehouse.

End of the Strike at Liverpool.—On Monday about 6,000 labourers who struck work at Liverpool docks three weeks ago resolved to resume work at the reduced rates of 4*s.* 6*d.* per day and 7*d.* an hour overtime. The men gave way on the advice of their own leaders. It is computed that over 40,000 men were at work at the docks at night.

"Deeds."—This is the title of an original comedy, written and now re-written and improved by Mrs. C. J. Freake, and which was performed before a large and critical audience at Cromwell House on Tuesday night last with remarkable success. We do not profess to take note of amateur theatricals, as a rule, but Mrs. Freake's name is so well and widely known amongst our readers that the doings at Cromwell House have a particular interest. The play has an interesting story, is ingeniously constructed, and very well written; and when we add that it includes songs, both French and English, written and composed by the author, it will be seen that no small praise is due to Mrs. Freake. The piece was very well acted by Mrs. Copplestone, Miss Helmore, Mr. Dundas Gardiner, Mr. Cotsford Dick, Mr. A. G. Samson, and Mr. Chas. Colnaghi, especially by the two last-named gentlemen; indeed, as respects Mr. Colnaghi, we do not recollect any professional actor on the stage who could sing the music of his part, a foreign nobleman speaking broken English, *and* act it, better than he did. A charming scene was built up for the performance.

Bedford High-street.—The High-street of Bedford is filling up. Describing the frontage of the business premises of the Messrs. Bull, the editor of the *Bedfordshire Times* writes,—"Being of red brick, highly worked, it is a novelty for our town, and as there is remarkably little to offend an accurate taste, the numerous details it presents are interesting. The work of genius is to blend structure with art, and it has been said that English building contains in provincial districts very little architecture. Incongruous mixtures of material certainly often offend the feelings either as regards structural requirements or more often as regards colour. Details and decoration often from being misplaced fail to convey effect, even if they do not offend by their nature; but here is a specimen of Queen Anne style which is an acquisition to the street, none the less so, it may be said, from the extreme contrast it presents to our own plain white stone structure just opposite, in which decoration, if not detail, has been almost avoided. The shop is the sumptuous and elegant work of Mr. Sage, of Gray's-inn-road, and is carried up with a fluted brick pilaster on either side. These support a massive cornice with carved panels under it, while above rises a well-considered gable with attic windows and the date in large letters. The first floor has a bay-window in Dumfries stone. Between the first and second floors reappears the Bull clock, with the motto 'Greenwich Time,' and in a niche above is a figure of 'Father Time.' This with the panel work is the production of Mr. Harry Hems, of Exeter. For the design of the building itself Bedford is indebted to Mr. John Day, of Victoria-terrace. The moulded bricks are from Cossey, near Norwich, the rest from Fareham."

National Water Supply, Sewage, and Health.—The annual conference will be held in the rooms of the Society of Arts, on Thursday and Friday, the 15th and 16th of May, 1879, on National Water Supply, Sewage, and Health. Papers relating to the above subjects will be read and discussed. There will be an Exhibition of Mechanical and Chemical Apparatus in connexion with Water Supply, Treatment of Sewage, and Health. The Council of the Society of Arts have determined to offer the Gold Medal of the Society, and three silver medals, for the best suggestions, founded upon evidence already published, for dividing England and Wales into watershed districts, for the supply of pure water to the towns and villages in each district.

The Streets and the Snow.—The Editor of the *Fireman* writes:—"There need not be the difficulty in removing the snow from the traffic-impeded thoroughfares that local authorities would have us believe. I remember seeing a very simple operation performed two or three years since in Leicester-square, and cannot understand why it has not been repeated during the exceptionally severe winter, from which it is only too evident we have not yet emerged. The *modus operandi* was as follows:—One of Merryweather's steam fire-engines was placed near a drain, beside it being a receptacle into which the snow was thrown. A small steam-pipe from the boiler of the engine acted on the snow, which was quickly thawed, and allowed to run into the sewer, disappearing as fast as carts could bring it up."

Luce Hosking's Patent Blind Roller.—The roller patented by Mr. W. Luce Hosking, of Ventnor, can be made in any length, of two halves, semicircular in section. The bottom half has a groove along the entire length of its flat or upper surface, and close to its front edge. The top half is hinged to it at its back edge, and has a rib or feather along its flat surface. When the two halves are brought together, the rib fits into the groove, and between these parts, and over four or more pin-points in the bottom half of the roller, the top edge of the window-blind is gripped, and the whole secured by a sliding latch, the roller being then round, and in appearance solid, with the blind hanging from one point of its diameter. Tin-tacks and sewing on of the blind are superseded; the blind hangs better over the window it has to cover, more evenly round the roller. The roller can be fitted with end sheaves for either a single or double cord; but when the single cord is employed a novel kind of cord-holder can be used which requires no other fastenings. The cord-holder is a small circular box, about the size of a halfpenny, for screwing to the window-frame; the cord passing down perpendicularly from the roller is threaded through the holder, and when the blind is required to be raised, is pulled down freely, or when lowered is allowed to run up through it. When, however, the blind is wanted to remain in any height up the window, the cord is pulled a little to the right by the thumb and finger, and catching against a loose jaw or cam inside the holder, the cam rises and grips the cord between it and a raised surface inside the cord-holder, till it is again relieved by the thumb and forefinger.

Beddington Sewage Farm, Croydon.—The Local Board of Croydon have decided to call in Mr. Bailey Denton to advise them generally in the sewage arrangements of this farm, as well as on the advisability of deep-draining the land, and the establishment of filter-beds for downward filtration, so as to relieve the farm and to make it more profitable.

TENDERS

For finishings, &c., to the Hastings Public Baths. Messrs. Cross, Jeffery, Skiller, & Wells, architects:—

Parks	£2,353 0 0
Harman & Co.	1,850 0 0
Taylor	1,830 0 0
Wood	1,773 0 0
Geary	1,765 0 0
Cruttenden	1,760 0 0
Hughes	1,753 0 0
Rodda (accepted)	1,720 0 0

For rebuilding premises, No. 70, 71, and 72, King William-street, City, for the Reliance Mutual Life Assurance Society. Mr. F. Chancellor, architect. Quantities supplied by Messrs. Curtis & Sons:—

Brown	£13,500 0 0
Dove, Brothers	13,375 0 0
Patman & Fotheringham	13,370 0 0
Conder	12,946 0 0
Braid & Co.	12,290 0 0
Morter	12,243 0 0
Downs	11,973 0 0
Perry & Co. (accepted)	11,921 0 0

For the erection of an Infirmary at Notting-hill, for the Guardians of St. Marylebone. The whole of the works to be completed in twelve months. Messrs. H. Saxon Snell & Son, architects:—

	Walls in Mortar.	Walls in Portland Cement.
Lovatt	£127,585	£136,755
Mowlem & Co.	124,993	131,993
Shaw	120,190	126,860
Crockett	119,783	126,990
Webster	118,800	126,600
Braid & Co.	117,350	123,850
Cowland, Brothers	115,415	121,800
Wall, Brothers	114,831	124,331
Perry & Co.	111,483	118,315
Baker & Son	109,318	115,935
Chappell (conditionally)	105,117	110,917

For restoration of St. George's Church, near Bristol, after injury by fire. Mr. P. E. Masey, architect. Quantities by Mr. Arthur Deane:—

Stephenson	£7,585 0 0 !
Martin	7,000 0 0
Williams	6,237 0 0
Humphries	5,697 0 0
Crocker	5,575 0 0
Howell	5,527 0 0
Lewis & Edbrooke	5,427 0 0
Baker & Son	5,350 0 0
Hatherley	5,156 0 0
Davis	5,145 0 0
Roberts & Thompson	5,119 0 0
Wall & Hook	5,118 0 0
Phillips	5,000 0 0
Forse & Ashley	4,999 15 0
Stephens & Bastow	4,990 0 0
Veales	4,985 0 0
Beaven	4,981 0 0
Gorvett	4,808 0 0
Wilkins & Son	4,874 0 0
Krauss	4,727 0 0
Wilkins & Hill	4,690 0 0
Banner	4,600 0 0
Jones & Shipp	4,555 0 0
Beaven	4,490 0 0
Cowlin & Son (accepted conditionally)	4,390 0 0 !

For rebuilding premises, Union-court, Old Broad-street. Mr. Sextus Dyball, architect. Quantities by Mr. E. W. Stoner:—

Greenwood	£3,366 0 0
MacCowan	3,358 0 0
Taylor	3,345 0 0
Brass	3,280 0 0
Merritt & Ashby	3,194 0 0
Kirk	3,180 0 0
Shepherd	3,090 0 0
Scrivener & White	3,014 0 0
Toms	2,967 0 0
Rudkin	2,955 0 0
Morter	2,949 0 0
Faulkner	2,921 0 0
Croaker (accepted)	2,819 0 0
Lyons	2,700 0 0

For works, Kings-road, Chelsea, for Mr. Jones. Messrs. Perry & Reid, architect. Quantities supplied:—

Brass	£2,394 0 0
Craske	2,115 0 0
Browne & Robinson	2,091 0 0
Clemence	2,090 0 0
Richardson	2,075 0 0
Clarke & Bracey	1,998 0 0

For two houses and shops at Hersham, Surrey, for Mr. F. J. Kerry. Mr. Henry Peak, architect. Quantities not supplied:—

Faulkner	£2,890 0 0 !
Kerry	2,020 0 0
Lee	1,950 0 0
Farley	1,850 0 0
Wood	1,770 0 0
Clark	1,750 0 0
Brown, W. & A. (accepted with modifications)	1,599 0 0 !

For new show-room and alterations at No. 28, High-street, Guildford, for Mr. John Simpson. Mr. Henry Peak, architect. Quantities supplied:—

Nye	1,294 0 0
Clark	1,227 10 0
Moon	1,120 0 0
Smith & Sons (accepted)	1,096 7 0

For the erection of dispensary and warehouse premises in Bartholomew-close, for the Committee of the Royal General Dispensary. Mr. William Ward Lee, architect. Quantities by Messrs. Welch & Atkinson:—

Rider & Son	£8,148 0 0
Ashby, Brothers	7,965 0 0
Conder	7,896 0 0
Woodward	7,750 0 0
Browne & Robinson	7,724 0 0
Colls & Sons	7,631 0 0
Brass	7,628 0 0
Brown	7,500 0 0
Higgs & Hill	7,494 0 0
Nightingale	7,483 0 0

For rebuilding No. 4 and, 5, Grocers' Hall-court. Messrs. Davis & Emanuel, architects. Quantities by Mr. H. P. Foster:—

Pritchard	£3,834 0 0
Williams	3,763 0 0
Colls & Son	3,739 0 0
Nightingale	3,690 0 0
Merritt & Ashby	3,667 0 0
Brass (accepted)	3,545 0 0

For vestry-hall and offices for the parish of Bromley St. Leonard, London, E. Messrs. A. & C. Harston, architects:—

North, Brothers	£7,170 0 0 !
Abraham	5,990 0 0
Braid & Co.	5,986 0 0
Wood	5,943 0 0
Palmer	5,645 0 0
Sheffield & Prebble	5,643 0 0
Reed	5,549 0 0
Shapley	5,495 0 0
Gregar	5,389 0 0
Perry & Co.	5,370 0 0
Cocks, J. & H.	5,266 0 0
Stephenson	5,239 0 0
Beale	5,220 0 0
Parker & Evans	5,095 0 0 !

For the erection of a factory and warehouse, High-street, Homerton. Mr. A. H. Kersey, architect. Quantities by Mr. Henry Lovegrove:—

Thomerson & Co.	£2,417 0 0
Woodward	2,405 0 0
Farrant & Sons	2,394 0 0
Nightingale	2,314 0 0
Stimpson & Co.	2,263 0 0
Scriviner & Co.	2,161 0 0
Jarvis & Son	2,147 0 0
Batchelder (accepted)	2,130 0 0

For the erection of five cottages, Shepherd's-lane, Homerton. Mr. A. H. Kersey, architect. Quantities by Mr. H. Lovegrove:—

Batchelder	£1,697 0 0
Thomerson & Co.	1,695 0 0
Tarrant & Sons	1,990 0 0
Niblett	1,680 0 0
Nightingale	1,643 0 0
Stimpson	1,643 0 0
Jarvis	1,561 0 0
Scrivener	1,538 0 0
Bishop & Hooper	1,498 0 0
Brealy	1,450 0 0

For Venetian blinds for the Guardians of the Poor of the Holborn Union. Messrs. H. Saxon Snell & Son, architects:—

Clarke	£833 5 4 !
Awford	718 0 0
Guynan & Sons	625 0 0
Williams	630 10 3
Baxter	617 7 8½
Godlonton	609 1 10
Collyer & Son	590 2 0
Haskins	590 0 0
Hodkinson & Clarke	581 15 0
Janes & Co.	563 0 0
Scruton	545 0 0
Atkinson & Co.	525 0 0
Davey	518 0 9
James & Son (accepted)	486 16 9 !

For new roads, sewers, and surface-water drains for the British Land Company (Limited), on their estate at Croydon. Mr. Henry B. Michell, surveyor:—

Killingback	£3,633 0 0 !
Crockett	2,996 0 0
Thompson & Son	2,835 0 0
Richardson	2,520 0 0
Harris	2,500 0 0
Jackson	2,478 0 0
Pizzey	2,409 0 0
Keeble	2,459 0 0
Dunmore	2,337 0 0
Peill (accepted)	2,330 0 0 !

For works and alterations at Glasshouse-street, Whitechapel, for the Metropolitan Board of Works:—

Nowell & Robson	£2,542 0 0
Griffiths	2,500 0 0
Aspinall & Son	2,400 0 0
Mowlem & Co.	2,290 0 0

For a house at Bickley, for Mr. J. Dakers. Mr. J. B. Wones, architect:—

Thompson	£2,240 0 0
Moat	2,150 13 8
Crossley	2,120 0 0
Jenkins	1,950 0 0

For seven houses in the Geraldine-road, East-hill, Wandsworth, for Messrs. R. & G. Neal:—

Merrett	£7,940 0 0
Osborne	6,967 0 0
Parsons	6,927 0 0
Lathey, Brothers	6,877 0 0
Lorden	6,789 0 0
Price	6,279 0 0
Holloway	6,148 0 0
Johnson	5,489 0 0

For taking down and rebuilding No. 281, East India Dock-road, for Messrs. B. Jones & Co. Quantities supplied:—

Reader	£1,492 9 0 !
Edgecombe & Co.	1,484 0 0
Stamp & Bowtle	1,439 0 0
Webb & Co.	1,308 15 3
Hunt	1,290 0 0
Niblettt	1,243 0 0
Crisp & Tomlin	1,237 0 0
Frost & Co.	1,226 14 6
Walker	1,2 0 0 0
Parker & Evans	1,139 0 0
Johnson	1,127 0 0
Bulford	1,089 0 0
Harradine	1,028 0 0
Hart	958 10 0
Shields	943 0 0 !

For the erection of a new Wesleyan Chapel, and alterations to present schools, &c., King Richard's-road and Fosse-road, Leicester:—

Trow & Sons	£6,460 0 0
Riddett	6,310 4 0
Bland & Son	6,040 0 0
Clark & Garrett	6,005 0 0
Potter	5,950 10 0
T. & H. Herbert	5,903 0 0
Stevens	5,801 4 0
Yeo	5,750 0 0
Thrall & Payne	5,720 0 0
Hall	5,700 0 0
Hewitt, H.	5,590 0 0
Hutchinson	5,482 0 0
Lindley	5,480 0 0
Hewitt, G.	5,399 0 0
Duxbury & Son	5,392 0 0
Allen	5,352 10 0
Lineham	5,330 17 0
Eagle	5,330 0 0

For the erection of a residence and stabling, exclusive of fittings and decorations, at Upper Norwood, for Mr. E. B. Normand. Mr. W. Paice, architect:—

Gibbon & Mitchell	£4,025 0 0 !
Ward	3,071 0 0
Ward & Son	3,040 0 0
Colls & Son	2,990 0 0
Patman & Co.	2,965 0 0
Bowyer	2,879 0 0
Colley	2,849 0 0
Gibbs	2,844 0 0
Downs & Co.	2,835 0 0
Nightingale	2,763 0 0
Smith	2,697 0 0
Moore	2,324 10 0 !

For rebuilding No. 68, 69, Cornhill, for Mr. Kino. Mr. W. Newton Dunn, architect. Quantities supplied by Mr. F. Lee:—

Adamson & Sons	£8,630 0 0
Marks	8,327 0 0
Dove, Brothers	7,995 0 0
Clemence	7,950 0 0
Bangs	7,567 0 0
Downs	7,333 0 0

For alterations and additions to the Charterhouse-street Branch of the London Joint Stock Bank. Messrs. Isaacs & Florence, architects. Quantities by Mr. L. C. Riddett:—

Brass	£1,112 0 0
Scrivener & Co.	1,075 0 0
Conder	1,068 0 0
Patman & Fotheringham	1,049 0 0
Hook & Oldrey	1,047 0 0
Browne & Robinson	1,030 0 0
Simpson & Son (accepted)	996 0 0

For rebuilding No. 106, Cheapside, for Mr. T. W. Bickerton. Mr. William Wimble, architect:—

Dove, Brothers	£5,995 0 0
Ashby & Horner	5,991 0 0
Scrivener & Co.	5,884 0 0
Ramsey	5,534 0 0
Laurence	5,397 0 0
Morter	5,393 0 0
Brass	5,161 0 9

The tender of Messrs. Guynan & Son has been accepted for blinds for the Borden Trust Schools, at Sittingbourne. Mr. C. Bryan Oliver, architect.

In list of tenders for alterations at the Prince Albert, Blackfriars-road (page 190), for "Regat" read *Royal*.

TO CORRESPONDENTS.

W. A.—T. C. N.—M. K.—W. G.—J. S.—C. C.—E. R.—G. W. F.—G. W. C. W.—W. W. L.—J. & Co.—R. & S.—W. L. C.—J. W. S.—R. & G. N.—H. P. F.—S. & S.—K. & R.—H. L.—R. A. & Son.—S. & E.—E. G.—G. F. S.—M. & S.—W. L. S.—F. C.—S. D.—J. J.—J. A.—G. & Son.—G. R. A.—N. T. O'K.—J. D. & Son.—F. (shall have attention).—A. Z. (No).—W. T. (thanks).—E. T. (enough has been said).—J. W. S. (next week).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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